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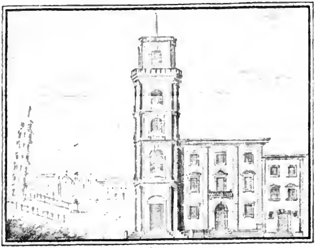
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NOVI PLANETAE
OBSERVATIONES ET THEORIA

AUCTORE

JOSEPHO SLOP DE CADENBERG

IN PISANA ACADEMIA PUBLICO ASTRONOMIAE PROFESSORE ET BONONIENSIS SCIENTIARUM INSTITUTI SOCIO.



PISIS MDCCLXXXII.

EXCUDEBAT JACOBUS GRATIOLIUS

SUPERIORUM PERMISSU.

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FRANCISCO
ARCHIDUCI AUSTRIAE
MAGNO ETRURIAE PRINCIPI
ETC. ETC. ETC.

JOSEPHUS SLOP.

UT ſub MAGNI PRINCIPIS Auſpiciis in publicam ederetur lucem de Novo Planeta commentarium, maxi-

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me decere videbatur, ſi minus propter operis tenuitatem, ſaltem propter nobilitatem materiae. Tuo igitur Nomini illud conſecrandum erat, Regie Princeps, qui litteras ſcientiasque ſummopere excolens a prima ferme ſingularis hujus ſideris apparitione de eo me interpellare dignatus, hoc ipſo ſtudium & benignitatem oſtendiſti, qua in poſterum magno Augusti Parentis exemplo excitatus ſperandum eſt, fore ut earum ſis tutamen & praeſidium eximium. Utinam opus Sapientum ſuffragiis probetur, ne prorſus indignum ſit Tanti Nominis gloria.

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NOVI PLANETAE
OBSERVATIONES
ET
THEORIA

Errans ſtella menſe Martio anni proxime elapſi in Anglia a D. *Herſhel* detecta, in Italia 12. primum Maii a Mediolanenſibus Aſtronomis obſervata eſt. Piſis ad conjunctionem cum Sole properantem unica tantum vice conſpicere ante finem ejusdem menſis potui. Vaporibus horizontis involuta ſpectantium oculis ſe ſubduxit, antequam ejus obſervationes inſtituerentur; Stellam tamen errantem a fixa diſtinctam agnovi cum ex rotunda & bene terminata diametro, tum ex ejus cum Stellis H, η, & μ Geminorum configuratione.

Redux a Florentia, ubi menſe Julio & Auguſti parte diverſatus fueram, camdem iterum vidi, atque 22. Auguſti obſervationibus primum proſecutus ſum. Eo menſe & toto menſe ſubſequenti ad teleſcopium parallatticum, quod centies diametrum augens rhomboidali micrometro inſtruitur, poſtea ad quadrantem muralem uſque ad 14. Martii obſervata fuit, ex quo tempore, cum diu meridianum traiiceret, ad teleſcopium obſervationes ejus denuo inſtitutae.

Ineunte primum menſe Septembri inter planetas recenſendam exiſtimavi, talemque ad id tempus & ſubſequenti menſe voce, ac per litteras Amicis, Aſtronomiſque annuntiavi. Indicia potiſſimum erant, quod nulla prorſus uſque ad id tempus caudae, vel capillitii ſigna praeſeferens non inaequali valde, ut cometae, ſed pene uniformi Solis calore, quemadmodum planetae, affecta videbatur: quod inſuper ejus diametri, quinque circiter ſecundorum, incrementum nullum, vel imminutio quatuor menſium intervallo cerni poſſet, quae indicia obſervationibus ſubſequentibus continuo confirmata ſunt; ipſi enim apparentes ſtellae motus ſidus exhibebant

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bant longiſſime a Sole diſſitum per mediam ferme Zodiaci faſciam ſecundum Signorum ordinem motu lentiſſimo progrediens, quod annuae parallaxeos variationibus ſingulis ita afficiebatur, ut ex iis proprii ſideris motus nulla diſcerni inaequalitas poſset.

Neque obſtare mihi videbatur, Planetam, qui pro ſua reſpectu Solis poſitione & diſtantia per decem & amplius cujuslibet anni menſes conſpiciendus erat, per tot ſeculorum ſucceſſionem inconſpicuum, noſtris tantum temporibus viſum.

Raro quidem, nonnunquam tamen nuda etiam oculorum acie conſpicuus mihi apparuit; id vero tum occurrebat, cum exiguis ſtellulis, quas teleſcopicas vocant, viciniſſimum caelo admodum ſereno eumdem intuebar, quo nempe tempore lumen ejus auctum lumine illarum fixarum vim in organum viſus ſenſibilem exercebat, unde ſequitur, haud mirum eſſe Planetam hunc inter ſtellas nudis oculis inconſpicuas facile reputandum ſeculis felicem Aſtronomiae epocham praecedentibus, qua immortalis noſter Galilaeus tubos opticos ad aſtra convertit, viſum nunquam fuiſſe. Si vero & poſt eamdem epocham ad haec uſque tempora ille non eſt cognitus, rem haud difficilem credet, quicunque novit, innumeras ſtellas inveniri, quae teleſcopiis tantum conſpicuae Aſtronomicis catalogis nondum adſcriptae ſunt. Singulae caeli univerſi fixae ab Aſtronomis ad catalogos reductae [illegible], cum tamen earumdem decem millia in ſola caeli plaga meridionali a *Caillio* ſimplici tubo optico intra biennium obſervata eſſe conſtet,

Fieri etiam fortaſſe potuit, ut Planeta noſter ab Aſtronomis obſervatus fixarum catalogis inſcriptus ſit, ſcilicet ſi unica obſervatione proſecuti eumdem fuerint, ut in exiguis hujusmodi ſtellulis facere plerumque ſolent, vel repetitis etiam obſervationibus, ſi eaedem inſtitutae ponantur, cum Planeta ſtationarius, vel lentiſſimo praeditus motu e Tellure cernitur, quo caſu exiguae obſervationum differentiae, minimis, qui in iis peragendis difficillime vitantur, erroribus tribui facile poterant.

Verum numerus planetarum, quorum inventio immemorabilia tempora involvit, augeri, & tam ſingularis, tantique momenti res certo affirmari haud poterat, prinſquam Novi Planetae motuum leges & theoria, quae obſervationibus ſatisfaceret, definita eſſent. Cum excentricitas exigua admodum ſit in elliptica planetae, contra pene infinita in cometae orbita, quae ideo pro parabolica aſſumitur, parabolicae trajectoriae pro nova

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hac ſtella inquiſitio tentanda haud videbatur, quamvis & ejus inveniendae & motuum in illa ſupputandorum methodi longe ſimpliciores ſint.

Euleri methodus, qua Cl. *Lexell* in cometarum an. 1769. & 1770. orbitis ellipticis valdeque excentricis deducendis uſus eſt, inquiſitioni Novi Planetae orbitae minus idonea videbatur, praecipue quod orbitae inclinatio, & loca nodorum, praenoſcenda intra paucorum minutorum terminos in illa methodo elementa, ſatis accurate cognoſci pro Planeta noſtro non poterant ob heliocentricum ejus motum obſervationum intervallo minimum in latitudine, & non niſi paucorum graduum in longitudine.

Inter varias praeſtanteſque de cometarum theoriis inveſtigandis methodos una mihi occurrit D. *Tempelhoff* deſcripta in ejus Commentario (1) praemio a Regia Berolinenſi Scientiarum Academia donato, qua Cl. Auctor rationes inter cometae vel planetae a Tellure diſtantias datis obſervationibus reſpondentes, quas curtatas appellant, formulis analyticis exprimit.

Ex iis formulis linearem ipſius diſtantiae aequationem ope quatuor obſervationum erui poſſe cernens, cum inde radii vectores, & anguli ab iis intercepti deducerentur, methodum tentari poſſe exiſtimaveram, qua pro *Euleri* etiam formulis duobus radiis vectoribus, & angulo intercepto cognitis, datoque tempore obſervationum orbitae ellipticae elementa proxime inveniuntur.

Sit S (Fig. I.) Solis centrum, A, A′, A″ loca Telluris, C, C′, C″ loca Planetae in orbita tempore trium obſervationum. Ductis ex centro Solis ad puncta A, A′, A″, C, C′, C″ radiis vectoribus, ducantur inſuper lineae CB, C′ B′, C″ B″ ad planum Eclipticae perpendiculares, & chordae CC′, C′ C″, CC″, punctaque A B, A′ B′, A″ B″ lineis AB A′ B′, A″ B″ conjungantur. Sint anguli, qui elongationis dicuntur, $SAB = \varepsilon$, $SA'B' = \varepsilon'$, $SA''B'' = \varepsilon''$, angulus a Tellure deſcriptus inter primam & ſecundam obſervationem $ASA' = \delta$, & ASA″ percurſus inter primam & tertiam $= \delta'$, latitudines Planetae geocentricae, ſive anguli $CAB = \lambda$, $C'A'B' = \lambda'$, $C''A''B'' = \lambda''$, diſtantiae Telluris a Sole $SA = a$, $SA'' = c$. Sint demum areae triangulorum CSC, C′ S C″, vel lineae iisdem proportionales CE, EC′ aequales litteris ν & μ, nempe $CE = \mu$, $EC' = \nu$, & Planetae diſtantiae a Tellure curtatae $AB = x$, $A''B'' = z$. Si areae

(1) Eſſai ſur la ſolution du probleme determiner l' orbite de la Comète par trois obſervations.

ſectorum CSC, C′SC″ triangulorum areis, vel lineis CE, EC′ proportionales ponantur, quod eo minus a vero diſſentit, quo anguli CSC′, C′SC″ minores, & minus inaequales ſunt, D. *Tempelhoff* demonſtrat

$$z = \frac{\frac{\nu}{\mu} x \left\{ \text{ſin.}(\varepsilon + \delta).\ \text{tang.}\ \lambda' - \text{tang.}\ \lambda.\ \text{ſin.}\ \varepsilon' \right\} + \left\{ c.\ \text{ſin.}(\delta' - \delta) - \frac{a\nu}{\mu}\ \text{ſin.}\ \delta \right\} \text{tang.}\ \lambda'.}{\text{tang.}\ \lambda''.\ \text{ſin.}\ \varepsilon' - \text{tang.}\ \lambda'\ \text{ſin.}(\varepsilon'' - \delta' + \delta).}$$

Si modo quatuor ſumantur obſervationes (Fig. II.), ita ut mediae C′ & C″ non multum inter ſe diſſitae aequali circiter ab extremis C, & C‴ diſtent intervallo, ſintque ut ſupra $SAB = \varepsilon$, $SA'B' = \varepsilon'$, $SA''B'' = \varepsilon''$, $SA'''B''' = \varepsilon'''$, $ASA' = \delta$, $ASA'' = \delta'$, $ASA''' = \delta'$, latitudines geocentricae $CAB = \lambda$, $C'A'B' = \lambda'$, $C''A''B'' = \lambda''$, $C'''A'''B''' = \lambda'''$, $SA = a$, $SA''' = c$, $AB = x$, $A'''B''' = z$, & lineae $CE = \mu$, $EC''' = \nu$, $CE' = \mu'$, $E'C''' = \nu'$, quae areis triangulorum CSC′, C′SC‴, CSC″, C″SC‴ proportionales ſunt, obſervationibus primum C, C′, & C‴, poſtea C, C″, & C‴ adhibitis erit juxta formulam ſuperiorem

$$z = \frac{\frac{\nu}{\mu} x \left\{ \text{ſin.}(\varepsilon + \delta)\ \text{tang.}\ \lambda' - \text{tang.}\ \lambda\ \text{ſin.}\ \varepsilon' \right\} + \left\{ c.\ \text{ſin.}(\delta'' - \delta) - \frac{a\nu}{\mu}\ \text{ſin.}\ \delta \right\} \text{tang.}\ \lambda'}{\text{tang.}\ \lambda'''.\ \text{ſin.}\ \varepsilon', - \text{tang.}\ \lambda'.\ \text{ſin.}(\varepsilon''' - \delta'' + \delta)}$$

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$$= \frac{\frac{\nu'}{\mu'} x \left\{ \text{ſin.}\,(\epsilon + \delta')\,\text{tang.}\,\lambda'' - \text{tang.}\,\lambda.\,\text{ſin.}\,\epsilon'' \right\} + \left\{ c.\,\text{ſin.}\,(\delta''' - \delta') - \frac{a\nu'}{\mu'}\,\text{ſin.}\,\delta' \right\}\,\text{tang.}\,\lambda''}{\text{tang.}\,\lambda'''\,\text{ſin.}\,\epsilon'' - \text{tang.}\,\lambda''.\,\text{ſin.}\,(\epsilon''' - \delta'' + \delta')};$$

unde aequatio linearis deducitur

$$x = \frac{\begin{array}{l} \text{tang.}\,\lambda'' \left\{ c.\,\text{ſin.}\,(\delta'' - \delta') - a\,\frac{\nu'}{\mu'}\,\text{ſin.}\,\delta' \right\} \\ \left\{ \text{ſin.}\,\epsilon'\,\text{tang.}\,\lambda''' - \text{ſin.}\,(\epsilon''' - \delta'' + \delta)\,\text{tang.}\,\lambda' \right\} \\ - \text{tang.}\,\lambda' \left\{ c.\,\text{ſin.}\,(\delta'' - \delta) - a\,\frac{\nu}{\mu}\,\text{ſin.}\,\delta \right\} \\ \left\{ \text{ſin.}\,\epsilon''.\,\text{tang.}\,\lambda''' - \text{ſin.}\,(\epsilon''' - \delta'' + \delta')\,\text{tang.}\,\lambda'' \right\} \end{array}}{\begin{array}{l} \frac{\nu}{\mu} \left\{ \text{ſin.}\,(\epsilon + \delta.)\,\text{tang.}\,\lambda' - \text{ſin.}\,\epsilon'\,\text{tang.}\,\lambda \right\} \\ \left\{ \text{ſin.}\,\epsilon''\,\text{tang.}\,\lambda''' - \text{ſin.}\,(\epsilon''' - \delta'' + \delta')\,\text{tang.}\,\lambda'' \right\} \\ - \frac{\nu'}{\mu'} \left\{ \text{ſin.}\,(\epsilon + \delta')\,\text{tang.}\,\lambda'' - \text{ſin.}\,\epsilon''\,\text{tang.}\,\lambda \right\} \\ \left\{ \text{ſin.}\,\epsilon'.\,\text{tang.}\,\lambda''' - \text{ſin.}\,(\epsilon''' - \delta'' + \delta.)\,\text{tang.}\,\lambda' \right\}. \end{array}}$$

Variis uſus obſervationibus cum linearum x & z valores ope hujus formulae evolvere ſuſcepiſſem, animadverti exiguae admodum latitudinum variationi dimidio etiam minuto ſecundo minori, magnas nimis valorum eorumdem differentias, ſcilicet unius pene Telluris a Sole integrae diſtantiae, reſpondere. Evidens inde erat, formulam illam caſui noſtro ſatisfacere nequaquam poſſe, niſi vitium hoc, quod ex Planetae latitudinum naſcitur tenuitate, vitaretur.

In formula D. *Tempelhoff*, ſi ſecunda obſervatio, cum Planeta Soli oppoſitus, inſtituta ponatur, angulus ε' aequatur gradibus 180, cujus ſinus = 0, unde (Fig. I.) tunc evadit

$$z = \frac{\frac{a\nu}{\mu}\,\text{ſin.}\,\delta - c\,\text{ſin.}\,(\delta' - \delta) - \frac{\nu}{\mu}\,x\,\text{ſin.}\,(\varepsilon + \delta)}{\text{ſin.}\,(\varepsilon'' - \delta' + \delta)}$$

ubi nullae latitudinum functiones continentur.

Quantitatibus reliquis, ut ſupra (Fig. I.), aſſumptis, ſi fiat inſuper SA' = b, A'B' = η, in eodem commentario ſequens demonſtratur aequatio, nempe

$$\left\{\frac{\nu}{\mu}\,x.\,\text{ſin.}\,(\varepsilon' - \varepsilon - \delta) - z.\,\text{ſin.}\,(\varepsilon'' - \delta' + \delta - \varepsilon')\right\}\eta$$

$$- \left\{\frac{\nu}{\mu}.\,a\,\text{ſin.}\,(\varepsilon' - \delta) + c.\,\text{ſin.}\,(\varepsilon' + \delta' - \delta)\right\}\eta$$

$$+ \left\{\frac{\nu}{\mu}\,x\,\text{ſin.}\,(\varepsilon + \delta) + z.\,\text{ſin.}\,(\varepsilon'' - \delta' + \delta)\right\}b$$

$$- \left\{\frac{\nu}{\mu}.\,a.\,\text{ſin.}\,\delta - c.\,\text{ſin.}\,(\delta' - \delta)\right\}b = 0;$$

Jam vero duabus hiſce aequationibus, quae nullas Planetae latitudines, vel latitudinum functiones involvunt, diſtantias a Tellure curtatas ſequenti modo erui poſſe videbatur.

Quin-

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Quinque Planetae obſervationes eae ſumantur, quibus intervallum temporis elapſum inter primam & ſecundam aequale ferme ſit intervallo inter ſecundam & quartam, & quarta inſuper obſervatio aequaliter diſtet a tertia & quinta; obſervatio autem ſecunda momento oppoſitionis inſtituta ponatur. Si modo diſtantia Planetae a Tellure curtata pro prima obſervatione fiat = u, manifeſtum eſt obſervationibus prima, ſecunda & tertia, prima, ſecunda & quarta, prima, ſecunda & quinta ſucceſſive adhibitis, ope ſuperioris formulae diſtantias a Tellure curtatas pro obſervationibus tertia, quarta & quinta in u expreſſas obtineri, quibus in altera aequatione loco x, y & z ſubſtitutis, aequatio habebitur ſecundi gradus nullam praeter u quantitatem incognitam continens, cujus ſolutione valor ipſius u, atque inde valores x, y & z, ſcilicet diſtantiae Planetae a Tellure curtatae pro obſervationibus prima, tertia, quarta & quinta innoteſcent.

Verum neque hujuſce methodi oppoſitioni, quae contigit 21 Decembris, & obſervationibus 18 Octobris, 11, & 26 Februarii, atque 13. Martii applicatae felicior ſucceſſus fuit. Planetae loca, quae inde derivabantur haud ſatis accurate locis obſervatis congruebant, curtataeque diſtantiae radios vectores Planetae inaequaliores faciebant, quam obſervationes ferre videbautur.

Cum deſcriptas modo, aliaſque methodos fruſtra tentaſſem, heliocentrici Stellae motus, quae ex obſervationibus inferri poterat, mecum reputans aequabilitatem, ejus orbitam a circulari vix differre poſſe, vel ſi ea eſſet elliptica magis excentrica, aut etiam parabolica, ſtellam tempore oppoſitionis viciniſſimam perihelio, quo & in hiſce trajectoriis heliocentrici motus uniformes pene ſunt, verſari debuiſſe collegi, unde rectas lineas a Sole, & a Tellure ad ſtellam prope oppoſitionem ductas ejus orbitae normales eſſe neceſſario conſequebatur.

Huic principio innixus vectorem radium cum in orbita circulari, tum in parabolica ſequenti ratione pro tempore oppoſitionis deduco. Sit (Fig. III.) S centrum Solis, T Telluris, P planetae in Ecliptica pro momento oppoſitionis, c & b loca Telluris, s & r loca Planetae ad Eclipticam reducta duodecim horis cum ante, tum poſt oppoſitionem. Eadem puncta conjungantur rectis cs, br, & ducatur recta bg parallela rectae cs uſque ad Planetae orbitam producta. Cum oppoſitio contigerit Tellure a perihelio non longe diſſita, diſtantia Planetae curtata SP Telluris orbitae normalis aſſumi poterit, unde chordae bc, gs parallelae & aequales ſunt. Planeta in prima obſervatio-

 ne

ne radio cs, vel eidem parallelo bg, in altera radio br conſpectus angulum gbr reſpectu Telluris retrogrado diurno motu percurrit. Fiat nunc medius Telluris motus diurnus $= m$, motus diurnus pro tempore oppoſitionis bSc $= n$, motus diurnus Planetae heliocentricus rSs $= p$, motus diurnus geocentricus gbr $= q$, diſtantia Telluris a Sole ST $= a$, latitudo Planetae heliocentrica $= \lambda$, & radius vector $= x$, unde diſtantia curtata Planetae a Tellure SP $= x.\cos.\lambda$.

Planetae orbita circulari primum poſita, erit periodicae ejus revolutionis tempus $= x\sqrt{x}$, & $p = \frac{m}{x\sqrt{x}}$. Jam vero habetur (TP) $x.\cos.\lambda - a$: (SP) $x.\cos.\lambda$ :: $\frac{m}{x\sqrt{x}}$: r T s = rbs $=$ $\frac{m.\cos.\lambda}{(x.\cos.\lambda - a)\sqrt{x}}$, & (TP) $x.\cos.\lambda - a$: a :: n : bPc = gbs $=$ $\frac{an}{x.\cos\lambda - a}$. Eſt autem gbs − rbs = gbr, unde eorumdem angulorum valoribus ſubſtitutis habetur $\frac{an}{x.\cos\lambda - a} - \frac{m.\cos.\lambda}{(x.\cos.\lambda - a.)\sqrt{x}} = q$, &

$$x^3 - \frac{2a.(n+q)}{q.\cos.\lambda}x^2 + \frac{a^2(n^2+2nq+q^2)}{q^2\cos.^2\lambda}x - \frac{m^2}{q^2} = 0.$$

Quod ſi ſtellae orbita fuerit parabolica, ex virium centralium legibus patet, diurnum arcum rs in orbita circulari, cujus radius aequalis eſt radio vectori parabolae, eſſe ad diurnum arcum in parabola, ut 1 ad $\sqrt{2}$; eſt autem in circulo arcus diurnus rs $=$ rSs . $x = \frac{m}{\sqrt{x}}$, ergo arcus diurnus in parabola erit $= \frac{\sqrt{2}.m}{\sqrt{x}}$ & angulus rSs $= \frac{\sqrt{2}.m}{x\sqrt{x}}$, unde colligitur rbs $= \frac{\sqrt{2}.m.\cos.\lambda}{(x.\cos.\lambda - a)\sqrt{x}}$;

&

$$\& \frac{an}{x.\cos.\lambda - a} - \frac{\sqrt{2.m.\cos.\lambda}}{(x.\cos.\lambda - a)\sqrt{x}} = q, \text{ atque } x^3 - \frac{2a.(n + q)}{q.\cos.\lambda} x^2$$

$$+ \frac{a^2 (n^2 + 2nq + q^2)}{q^2.\cos.^2\lambda}.\, x - \frac{2\, m^2}{q^2} = 0;$$

Cum latitudo Planetae geocentrica pro tempore oppoſitionis vix quindecim minuta excedat, & minor ea ſit latitudo heliocentrica, ſi aequationes pro orbita circulari & parabolica, unitate loco coſinus λ ſubſtituta, reſolvantur, radii vectores x proxime veris elicientur, tumque latitudine heliocentrica inventa, atque ejus adhibito coſinu, valores veri radiorum vectorum reſolutis iterum aequationibus eruentur. Si enim fiat latitudo geocentrica pro momento oppoſitionis $= l$, conſtat fore tang. $\lambda =$

$$\frac{(x \cos.\lambda - a)}{x \cos.\lambda} \text{ tang. } l.$$

Itaque ut ad ſuperiorum aequationum reſolutionem deveniamus Planetae oppoſitio calculo prius ſupputanda eſt.

NOVI PLANETAE OPPOSITIO an. 1781.

Planetam ad quadrantem muralem una cum ſtellis η, & μ Geminorum, atque ſtellula, quae in *Mayeri* catalogo n° 245 ponitur, 22 & 23 Decembris proſecuti ſumus. Differentia declinationum inter Planetam & ſtellas η & 245 Geminorum haud eſt obſervata, quod ob vicinum nimis earum & Planetae ad meridianum appulſum diſtantias a vertice ad limbi diviſiones aeſtimandi tempus deeſſet. Stellarum η & 245 locis ex *Mayeri*, μ vero ex *Bradleii* catalogo depromptis in obſervationum reductione uſi ſumus, atque ratio inſuper habita eſt apparentium ſtellarum motuum a 22 ad 23 Decembris. Loca ſtellarum apparentia ad 22 ejusdem menſis calculo ſupputata exhibentur.

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Ex *Bradleii* catalogo

η Geminorum Aſcenſio recta	. . . . . .	3^s $0.^\circ$ 26.' 2", 6
Declinatio Borealis	. . . . . .	0. 22. 33. 15, 1
μ Geminorum Aſcenſio recta	. . . . . .	3. 2. 26. 44, 4
Declinatio Borealis	. . . . . .	0. 22. 36. 37, 4

Ex catalogo ſtellarum Zodiacalium *Caillii*

η Geminorum Aſcenſio recta	. . . . . .	3. 0. 26. 52, 4
Declinatio Borealis.	. . . . . .	0. 22. 33. 20, 9
μ Geminorum Aſcenſio recta	. . . . . .	3. 2. 26. 35, 0
Declinatio Borealis	. . . . . .	0. 22. 36. 42, 2

Ex *Mayeri* catalogo ſtellarum Zodiacalium

η Geminorum Aſcenſio recta	. . . . . .	3 0. 25. 59, 3
Declinatio Borealis.	. . . . . .	0 22. 33. 18, 7
St. n.° 245. Gem. Aſcenſio recta	. . . . .	3. 1. 24. 33, 4
Declinatio Borealis		0. 23 40. 21, 5
μ Geminorum Aſcenſio recta	. . . . . .	3. 2. 26. 37, 9
Declinatio Borealis	. . . . . .	0. 22. 36. 41, 1

22. Decembris t. m. 11h. 55.' 58".

Planetae & η Geminorum differentia obſervata

Aſcenſionum rectarum ,	. . . .	† 0. 0. 28. 56, 4
Aſcenſio recta Planetae.	. . . .	3. 0. 54. 55, 7

22. Decembris t. m. 11.h 55'. 58".

Planetae & ſtellae n.° 245. Gem. differentia obſervata.

Aſcenſionum rectarum	. . . . . .	− 0. 0. 29. 31, 4
Aſcenſio recta Planetae	. . . .	3. 0. 55. 2, 0

22. Decembris t. m. 11.h 55'. 58"

Planetae & μ Geminorum differentia obſervata

In aſcenſione recta	. . . .	− 0. 1. 31. 46, 5
In declinatione	. . . .	† 0. 1. 6. 36, 5

Dif-

Differentia in declinatione correcta a refra-
ctione . . . . † 0. 1° 6' 37", 7
Planetae Aſcenſio recta 3. 0. 54. 57, 9
Declinatio Borealis 0. 23. 43. 15, 1

Obſervationibus, ut infra exponetur, aeſtimatis ad idem tempus elicitur

Poſitio Planetae apparens

☾ Aſcenſio recta 3. 0. 54. 57, 5
☾ Declinatio Borealis 0. 23. 43. 15, 1
☾ Longitudo 3. 0. 50. 18, 94
☾ Latitudo Borealis 0. 0. 15, 11, 8

23. Decembris t. m. 11h 51' 55".

Planetae & η Geminorum differentia obſervata
In aſcenſione recta . . . . † 0 0. 26. 7, 6
Planetae Aſcenſio recta . . . . 3 •. 52. 7, 2

23. Decembris t. m. 11h 51' 55".

Planetae & ſtellae *Mayeri* 245. differentia obſervata
In aſcenſione recta 0. 0. 32. 20, 7
Planetae aſcenſio recta 3 0. 52. 12, 9

23. Decembris t. m. 11.h 51' 55".

Planetae & μ Geminorum differentia obſervata
Rectarum Aſcenſionum . . . . − 0. 1. 34. 36, 2
Differentia declinationum . . . . . . † 0. 1. 6. 36, 7
Eadem correcta a refractione. . . . . † 0. 1. 6 37, 9
Planetae aſcenſio recta 3. 0. 52. 8, 4
Declinatio Borealis 0. 23. 43. 15, 3

Aeſtimatis obſervationibus habetur ad idem tempus

Poſitio

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Poſitio Planetae apparens

(Aſcenſio recta	3ˢ 0° 52' 8", 5
(Declinatio Borealis	0. 23. 43. 15, 3
(Longitudo	3. 0. 47. 44, 18
(Latitudo Borealis	0. 0. 15. 11, 9

Cum Solis longitudo tempore obſervationis 22 Decembris juxta *Mayeri* tabulas fuerit 9ˢ 1° 36' 13", 5. arcus 0° 45' 54", 6 relativo Planetae a Sole motu poſt oppoſitionem eo tempore percurſus erat. Motus Planetae in longitudine a 22. ad 23. Decembris obſervatus habetur 0.° 2'. 34", 76, unde motus ejus diurnus erat 0° 2'. 35", 19. Jam vero pro diurno hoc Planetae motu & motu diurno Solis 1.° 1'. 9", 5 arcus ille deſcribitur horis 17. 17'. 9", ergo oppoſitio apparens contigit 21. Decembris t. m. 18ʰ 38' 49". Longitudo Solis ad id tempus deducitur 9ˢ 0° 52.' 10", 7, unde longitudo apparens Planetae pro tempore oppoſitionis erat 3.ˢ 0.° 52' 10", 7.

Ut Planetae longitudo heliocentrica accuratior colligi inde poſſit, praeter aequationem alibi deſcriptam (1) poſt inventum radium vectorem determinandam, alia adhibenda videtur in caſu noſtro admodum exigua, ſed major pro reliquis planetis, praecipue inferioribus.

Solarium motuum tabulae apparentem Solis longitudinem ad datum quodvis tempus exhibent, quae ob ſucceſſivam luminis propagationem & motum Telluris 20" minor vera eſt, ut ex aberrationis theoria patet. Haec Solis aberratio conſtantem in ejus longitudinem, & in angulos, quos elongationis appellant, pro planetis ſingulis inducens variationem, diverſimmode afficit angulos commutationis pro diverſo reſpectu Solis planetae cujusvis poſitu & diſtantia. Major ea commutationis variatio eſt, quo planetae Soli viciniores; maxima vero in eorumdem cum Sole conjunctionibus & oppoſitionibus, nulla in quadraturis. Ratio ejus pro ſingulis caſibus habetur Solis tantummodo longitudine, quae ex Aſtronomicis tabulis calculo ſubducta fuit, 20" aucta. Quod ſi adhibita fuerit Solis longitudo, prout ex tabulis deprompta, ſequenti modo habenda ratio ejus videtur.

Sit

(1) Obſervationes Siderum habitae Piſis ab an. 1774. ad an. 1778. pag. 112.

Sit primum in Planetarum, ut vocant, ſizigiis (Fig. IV. V & VI.) s locus Solis apparens ex Aſtronomicis tabulis ſupputatus, S idem locus auctus 20'', ſive locus Solis verus, T Tellus, P planeta, unde STs = 20''. Fiat ST = sT = a, sP = SP = R, conſtat haberi R : a :: 20'' : SPs = $\frac{a\ 20''}{R}$, quae erit aequatio addenda in Fig. IV. & VI, & contra demenda in Fig. V, planetae longitudini viſae ex s, ut eadem longitudo viſa ex S, ſive correcta habeatur.

Sint deinde pro quavis planetae reſpectu Solis configuratione (Fig. VII.) puncta s, S, P, T, quae ſupra, atque inſuper fiat angulus commutationis PsT = C & angulus elongationis PTs = E. Ex S ducta Sm perpendiculari ad Ps habetur Ss = a. 20'', & 1 : cos. C :: a. 20'' : Sm = a 20''. cos. C, atque R : a. 20''. cos. C :: 1 : SPm = $\frac{a.\ 20''.\cos.C}{R}$, aequatio ſcilicet, qua planetae longitudo ex s viſa corrigi debet, ut eadem viſa ex centro Solis S, ſive heliocentrica habeatur. Differentia inter angulum PsT, & veram commutationem PST ita eruetur: Cum ſit sPT = 180° − E − C, & SPT = 180°. − E − C + $\frac{a.\ 20''.\ \cos.\ C}{R}$, erit PST = 180°. − PTs + STs − SPT = C + 20'' − $\frac{a\ 20''.\ \cos.\ C}{R}$, & PST − PsT = 20'' − $\frac{a.\ 20''.\ \cos.\ C}{R}$. Patet demum differentiam inter Ps & radium vectorem PS ſive ms aequalem eſſe a. 20''. ſin. C.

Tempore oppoſitionis, & diurnis Planetae, Solisque motibus definitis aequationes ſuperius deſcriptae reſolvi nunc poterunt. Eſt enim medius Telluris motus diurnus m = 0° 59' 8'', 33, motus diurnus Planetae geocentricus q = 0.° 2' 35, 19, diſtantia Telluris a Sole a = 0. 98338, motus diurnus Telluris pro tempore oppoſitionis n = 1° 1' 9'', 5, unde in

 aequa-

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aequatione pro circulari orbita, cujus ternae radices poſitivae & reales ſingulae ſunt, unitate loco coſinus λ aſſumpta, eae habentur 18, 989., 28., 517., 0, 965., quarum prima caſui noſtro ſatisfacit.

Geocentrica latitudo pro momento oppoſitionis erat 0.° 15.′ 12″, 3, qua cognita, & pro radio vectore aſſumpta radice 18, 989, Planetae latitudo heliocentrica invenitur 0.° 14.′ 25″, cujus coſinus = 0, 99999. Itaque ſuperiori aequatione iterum reſoluta radius vector 18, 9894 elicietur.

Aequatio altera pro parabolica orbita dat radium vectorem = 16, 2026.

Jam vero ſi Planetae orbita circularis ſit, vel ſi in orbita elliptica radius vector 18, 9894 aequalis fuerit diſtantiae mediae Planetae a Sole, erit tempus periodicae ejus revolutionis $\sqrt{x^3} = 82.^{an.}\ 74979$, ſcilicet dies 30224. hor. $20\frac{1}{2}$;

motus diurnus heliocentricus $\frac{m''}{x\sqrt{x}} = 42''$, 88, & motus annuus

$\frac{306''}{x\sqrt{x}} = 4.° \ 21.' \ 1''', 7$.

Cum praeter oppoſitionem duae obſervatae fuerint Planetae ſtationes, quarum prima verſus 8 Octobris praecedebat, altera verſus 6 Martii aequali ferme tempore oppoſitionem ſubſequebatur, fidique obſervationibus poſſe, ſingulis ad quadrantem muralem inſtitutis, videretur, animadverti arcus a prima ſtatione ad oppoſitionem, & ab oppoſitione ad alteram ſtationem retrogrado geocentrico Planetae motu hinc inde percurſos aequales propemodum eſſe, nempe 2.° 2.′ 34″, & 2°. 2′. 37″, atque etiam tempore utriusque ſtationis parum inter ſe differre Telluris a Sole diſtantias, quarum logarithmi juxta tabulas erant 9. 99899., 9. 99706, unde conſequitur heliocentricum quoque Planetae motum toto eo tempore uniformem admodum, atque orbitam pene circularem eſſe debuiſſe, vel ſi magis excentrica haec ſit, Planetam lineae apſidum viciniſſimum tempore oppoſitionis fuiſſe.

Itaque

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Itaque utrum orbita circularis, cujus radium jam invenimus, obſervationibus ſatisfaceret, inquirendum videbatur. quod ut fiat, longitudo nodi heliocentrica, orbitae ad planum Eclipticae inclinatio, & heliocentricae in eadem orbita longitudinis Epocha determinanda.

Longitudo nodi, & orbitae inclinatio obſervationum 15 Maii, 17 Julii, & 18 Octobris anni proxime elapſi comparatione cum obſervationibus 13, & 14 Martii vertentis anni inſtituta, medioque inter varios earumdem valores ſumpto, prout ſequitur, deductae ſunt.

Die 15. Maii t. m. 8.ʰ 5.′ 52″ juxta obſervationem, quam Cl. *Franciſcus Reggio* Mediolanenſis Aſtronomus humaniſſime mecum communicaverat, aſcenſio recta apparens Planetae erat 86° 19′ 16″, declinatio Borealis 23.° 37.′ 14″, & Longitudo 2.ˢ 26.° 37′. 46″, 8, latitudo Borealis 0.° 11′. 36″, 7. atque inde longitudo vera heliocentrica, aberrationis, & nutationis habita ratione, 2.ˢ 28.° 13.′ 47″, 6, & latitudo heliocentrica 0.° 12.′ 8″, 12.

Ex obſervatione 13 Martii infra exponenda t. m. 6ʰ. 28′. 58″. vera longitudo heliocentrica habetur 3.ˢ 1.° 50.′ 23″, 5, & latitudo heliocentrica Borealis 0.° 15.′ 9″, 55, unde obſervationibus inter ſe comparatis eruitur ad 15. Maii

Longitudo nodi aſcendentis	2.ˢ 14.° 9.′ 24″,
Et inclinatio orbitae	0. 0. 49. 54, 2

Juxta obſervationem 14 Martii t. m. 6ʰ. 25′. 3″. heliocentrica Planetae longitudo vera invenitur 3.ˢ 1.° 51.′ 7″, 5 & latitudo heliocentrica 0.° 15′. 11″, 66. Ex hiſce Planetae locis una cum iis, quae pro 15 Maii ſuperius deſſumpta, ad idem tempus colligitur

Longitudo nodi	2. 14. 15. 54, 2
Orbitae inclinatio	0. 0. 50. 17, 9

Die 17 Julii t. m. 15.ʰ 49.′ 15.″ Planetae aſcenſio recta apparens a Cl. *Meſſier* obſervata eſt 90.° 19.′ 17″, & declinatio Borealis 23°. 40.′ 11″, unde deducitur longitudo geocentrica 3.ˢ 0.° 17.′ 38″, 0, latitudo Borealis 0.° 12.′ 1″, 3, & lon-

 gitudo

gitudo vera heliocentrica 2ſ 28.° 59'. 10, 3, latitudo heliocentrica 0.° 12'. 35", 97. Haec obſervatio comparata obſervationi 13. Martii exhibet ad 17. Julii.

Longitudinem nodi	2ſ. 15°. 17'. 54",
Inclinationem orbitae	0. 0. 53. 14, 4

Si vero comperetur obſervationi 14 Martii, erit pro 17. Iulii.

Longitudo nodi	2. 15. 25. 9,
Inclinatio orbitae	0. 0. 53. 42, 3

Die 18. Octobris t. m. 16.h 20'. 25". pro obſervatione inferius deſcripta, vera Planetae longitudo heliocentrica reperitur 3ſ. 0°. 6' 4", 8, & latitudo heliocentrica Borealis 0.° 13' 46", 28, quae loca ſi referantur heliocentricis Planetae locis 13. Martii, elicitur ad 18. Octobris

Longitudo nodi	2. 13. 25. 24.
Inclinatio orbitae	0. 0. 47. 58, 9

Et ſi eadem locis 14. Martii comparentur, erit ad idem tempus

Longitudo nodi	2. 13. 42 4,
Inclinatio orbitae	0. 0. 48. 46, 3

Medio inter diverſos valores ſumpto longitudo nodi aſcendentis ad initium vertentis anni definitur 2ſ. 14°. 23', & orbitae inclinatio 0°. 50'. 40".

Hiſce elementis reductio longitudinis ad Planetae orbitam pro tempore oppoſitionis invenitur + 0.° 0'. 6". 1, & longitudo in orbita 3ſ. 0.° 52.' 16", 8, quae exiguis duabus aequationibus ſuperius deſcriptis − 8", o pro Planetae aberratione & nutatione, & + 1", o pro aberratione Solis corrigenda, ut vera heliocentrica Planetae longitudo in orbita 3.ſ 0.° 52'. 9", 8 ad apparentis oppoſitionis momentum eruatur.

Oppoſi-

Oppoſitio, ut oſtendimus, contigit 21. Decembris t. m. 18.h 38.' 49", a quo tempore uſque ad meridiem diei 31. ejusdem menſis interſunt dies 9. 5.h 21'. 11". Hoc temporis intervallo arcus 0.° 6'. 35", 5 a Planeta pro diurno ejus motu 42", 88 deſcribitur, unde longitudo heliocentrica in orbita, vel Epocha proprii motus Planetae initio vertentis anni ſive meridie 31. Decembris anni 1781. habetur 3.ˢ 0.° 58.' 45", 3.

Ut citius modo commodiuſque Planetae loca in hac orbita circulari ad quodvis datum tempus ſupputari, eaque locis obſervatis referri poſſint, haud inutile erit heliocentricos Planetae motus ad ſingulos anni dies ſequentibus tabulis exhibere.

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	Januarius	Februarius	Martius	Aprilis
1	0°. 0' 42", 9	0° 22' 52", 2	0° 42' 52", 8	1° 5' 2", 1
2	0 1 25, 8	0 23 35, 1	0 43 35, 7	1 5 45, 0
3	0 2 8, 6	0 24 17, 9	0 44 18, 6	1 6 27, 9
4	0 2 51, 5	0 25 0, 8	0 45 1, 5	1 7 10, 7
5	0 3 34, 4	0 25 43, 7	0 45 44, 3	1 7 53, 6
6	0 4 17, 3	0 26 26, 6	0 46 27, 2	1 8 36, 5
7	0 5 0, 2	0 27 9, 5	0 47 10, 1	1 9 19, 4
8	0 5 43, 0	0 27 52, 3	0 47 53, 0	1 10 2, 3
9	0 6 25, 9	0 28 35, 2	0 48 35, 9	1 10 45, 1
10	0 7 8, 8	0 29 18, 1	0 49 18, 7	1 11 28, 0
11	0 7 51, 7	0 30 1, 0	0 50 1, 6	1 12 10, 9
12	0 8 34, 6	0 30 43, 9	0 50 44, 5	1 12 53, 8
13	0 9 17, 4	0 31 26, 7	0 51 27, 4	1 13 36, 7
14	0 10 0, 3	0 32 9, 6	0 52 10, 3	1 14 19, 5
15	0 10 43, 2	0 32 52, 5	0 52 53, 1	1 15 2, 4
16	0 11 26, 1	0 33 35, 4	0 53 36, 0	1 15 45, 3
17	0 12 9, 0	0 34 18, 3	0 54 18, 9	1 16 28, 2
18	0 12 51, 8	0 35 1, 1	0 55 1, 8	1 17 11, 1
19	0 13 34, 7	0 35 44, 0	0 55 44, 7	1 17 53, 9
20	0 14 17, 6	0 36 26, 9	0 56 27, 5	1 18 36, 8
21	0 15 0, 5	0 37 9, 8	0 57 10, 4	1 19 19, 7
22	0 15 43, 4	0 37 52, 7	0 57 53, 3	1 20 2, 6
23	0 16 26, 2	0 38 35, 5	0 58 36, 2	1 20 45, 5
24	0 17 9, 1	0 39 18, 4	0 59 19, 1	1 21 28, 3
25	0 17 52, 0	0 40 1, 3	1 0 1, 9	1 22 11, 2
26	0 18 34, 9	0 40 44, 2	1 0 44, 8	1 22 54, 1
27	0 19 17, 8	0 41 27, 1	1 1 27, 7	1 23 37, 0
28	0 20 0, 7	0 42 9, 9	1 2 10, 6	1 24 19, 9
29	0 20 43, 5		1 2 53, 5	1 25 2, 7
30	0 21 26, 4		1 3 36, 3	1 25 45, 6
31	0 22 9, 3		1 4 19, 2	
mot. ☊	0 0 5, 4	0 0 8, 9	0 0 12, 0	0 0 15, 4

	Majus	Junius	Julius	Augustus
1	1° 26' 28",5	1° 48' 37",8	2° 10' 4",2	2° 32' 13",5
2	1 27 11, 4	1 49 20, 7	2 10 47, 2	2 32 56, 4
3	1 27 54, 3	1 50 3, 6	2 11 30, 0	2 33 39, 2
4	1 28 37, 1	1 50 46, 4	2 12 12, 8	2 34 22, 1
5	1 29 20, 0	1 51 29, 3	2 12 55, 7	2 35 5, 0
6	1 30 3, 9	1 52 12, 2	2 13 18, 6	2 35 47, 9
7	1 30 45, 8	1 52 55, 1	2 14 21, 5	2 36 30, 8
8	1 31 28, 7	0 53 38, 0	2 15 4, 4	2 37 13, 6
9	1 32 11, 5	1 54 20, 8	2 15 47, 2	2 37 56, 5
10	1 32 54, 4	1 55 3, 7	2 16 30, 1	2 38 39, 4
11	1 33 37, 3	1 55 46, 6	2 17 13, 0	2 39 22, 3
12	1 34 20, 2	1 56 29, 5	2 17 55, 9	2 40 5, 2
13	1 35 3, 1	1 57 12, 4	2 18 38, 8	2 40 48, 0
14	1 35 47, 0	1 57 55, 2	2 19 21, 6	2 41 30, 9
15	1 36 28, 8	1 58 38, 1	2 20 4, 5	2 42 13, 8
16	1 37 11, 7	1 59 21, 0	2 20 47, 4	2 42 56, 7
17	1 37 54, 6	2 0 3, 9	2 21 30, 3	2 43 39, 6
18	1 38 37, 5	2 0 46, 8	2 22 13, 2	2 44 22, 5
19	1 39 20, 4	2 1 29, 6	2 22 56, 0	2 45 5, 3
20	1 40 3, 2	2 2 12, 5	2 23 39, 9	2 45 48, 2
21	1 40 46, 1	2 2 55, 4	2 24 21, 8	2 46 31, 1
22	1 41 29, 0	2 3 38, 3	2 25 4, 7	2 47 14, 0
23	1 42 11, 9	2 4 21, 2	2 25 47, 6	2 47 57, 3
24	1 42 54, 8	2 5 4, 0	2 26 30, 4	2 48 40, 1
25	1 43 37, 6	2 5 46, 9	2 27 13, 3	2 49 22, 6
26	1 44 20, 5	2 6 29, 8	2 27 56, 2	2 50 5, 5
27	1 45 3, 4	2 7 12, 7	2 28 39, 1	2 50 48, 4
28	1 45 46, 3	2 7 55, 6	2 29 22, 0	2 51 31, 3
29	1 46 29, 2	2 8 38, 4	2 30 4, 8	2 52 14, 1
30	1 47 12, 0	2 9 21, 3	2 30 47, 7	2 52 57, 0
31	1 47 54, 9		2 31 30, 6	2 53 39, 9
Mot Ω	0 0 20, 1	0 0 25, 8	0 0 30, 3	0 0 34, 3

.	September	October	November	December
1	2° 54′ 22″,8	3° 15′ 49″,2	3° 37′ 58″,5	3° 59′ 24″,9
2	2 55 5, 7	3 16 32, 1	3 38 41, 3	4 0 7, 8
3	2 55 48, 5	3 17 14, 9	3 39 24, 2	4 0 50, 6
4	2 56 31, 4	3 17 57, 8	3 40 7, 1	4 1 33, 5
5	2 57 14, 3	3 18 40, 7	3 40 50, 0	4 2 16, 4
6	2 57 57, 2	3 19 23, 6	3 41 32, 9	4 2 59, 3
7	2 58 40, 1	3 20 6, 5	3 42 15, 7	4 3 42, 2
8	2 59 22, 9	3 20 49, 3	3 42 58, 6	4 4 25, 0
9	3 0 5, 8	3 21 32, 2	3 43 41, 5	4 5 7, 9
10	3 0 48, 7	3 22 15, 1	3 44 24, 4	4 5 50, 8
11	3 1 31, 6	3 22 58, 0	3 45 7, 3	4 6 33, 7
12	3 2 14, 5	3 23 40, 9	3 45 50, 1	4 7 16, 6
13	3 2 57, 3	3 24 23, 7	3 46 33, 0	4 7 59, 4
14	3 3 40, 2	3 25 6, 6	3 47 15, 9	4 8 42, 3
15	3 4 23, 1	3 25 49, 5	3 47 58, 8	4 9 25, 2
16	3 5 6, 0	3 26 32, 4	3 48 41, 7	4 10 8, 1
17	3 5 48, 9	3 27 15, 3	3 49 24, 5	4 10 51, 0
18	3 6 31, 7	3 27 58, 1	3 50 7, 4	4 11 33, 8
19	3 7 14, 6	3 28 41, 0	3 50 50, 3	4 12 16, 7
20	3 7 57, 5	3 29 23, 9	3 51 33, 2	4 12 59, 6
21	3 8 40, 4	3 30 6, 8	3 52 16, 1	4 13 42, 5
22	3 9 23, 3	3 30 49, 7	3 52 58, 9	4 14 25, 4
23	3 10 6, 1	3 31 32, 5	3 53 41, 8	4 15 8, 2
24	3 10 49, 0	3 32 15, 4	3 54 24, 7	4 15 51, 1
25	3 11 31, 9	3 32 58, 3	3 55 7, 6	4 16 34, 0
26	3 12 14, 8	3 33 41, 2	3 55 50, 5	4 17 16, 9
27	3 12 57, 7	3 34 24, 1	3 56 33, 4	4 17 59, 8
28	3 13 40, 5	3 35 6, 9	3 57 16, 2	4 18 42, 6
29	3 14 23, 4	3 35 49, 8	3 57 59, 1	4 19 25, 5
30	3 15 6, 3	3 36 32, 7	3 58 42, 0	4 20 8, 4
31		3 37 15, 6		4 20 51, 3
Mot ☊	0 0 37, 3	0 0 40, 8	0 0 45, 3	0 0 50, 7

Horae	Motus intra horas.	Minut.	Motus intra minuta.	Minut.	Motus intra minuta.
1	1', 8	1	0", 0	31	0", 9
2	3, 6	2	0, 1	32	1, 0
3	5, 4	3	0, 1	33	1, 0
4	7, 2	4	0, 1	34	1, 0
5	8, 9	5	0, 2	35	1, 1
6	10, 7	6	0, 2	36	1, 1
7	12, 5	7	0, 2	37	1, 1
8	14, 3	8	0, 2	38	1, 1
9	16, 1	9	0, 3	39	1, 2
10	17, 9	10	0, 3	40	1, 2
11	19, 7	11	0, 3	41	1, 2
12	21, 4	12	0, 4	42	1, 3
13	23, 2	13	0, 4	43	1, 3
14	25, 0	14	0, 4	44	1, 3
15	26, 8	15	0, 5	45	1, 3
16	28, 6	16	0, 5	46	1, 4
17	30, 4	17	0, 5	47	1, 4
18	[illegible]	18	0, 5	48	1, 4
19	34, 0	19	0, 6	49	1, 5
20	35, 7	20	0, 6	50	1, 5
21	37, 5	21	0, 6	51	1, 5
22	39, 3	22	0, 7	52	1, 6
23	41, [illegible]	23	0, 7	53	1, 6
24	42, 9	24	0, 7	54	1, 6
		25	0, 8	55	1, 6
		26	0, 8	56	1, 7
		27	0, 8	57	1, 7
		28	0, 8	58	1, 7
		29	0, 9	59	1, 8
		30	0, 9	60	1, 8

Jam vero obſervationes nunc deſcribendae, & earumdem cum hac orbita circulari comparatio inſtituenda eſt. Planeta ſtellis H, η & μ Geminorum, ſtellae in *Caillii* catalogo ſtellarum Zodiacalium n.° 184, atque inſuper ſtellis catalogi *Mayeri* n°. 244, 245, & 250. notatis relatus eſt. Fixarum H & μ ex *Bradleii*, η Geminorum loca ex *Mayeri* catalogo deſumpſimus, quod ita major obſervationum conſenſus obtinetur. Medio inter 15 obſervationes ſumpto Planetae aſcenſio recta ex ſtella H major 3", 6, declinatio eadem, quae ex ſtella μ Geminorum, deducitur. Obſervationes 21 aſcenſionem rectam Planetae comparati ſtellae η Geminorum majorem 0", 3, & 18 obſervationes declinationem majorem exhibent 0", 5, quam cum ſtellae μ Planeta relatus eſt. Aſcenſio recta deducta ex Planetae comparatione cum ſtella catalogi *Mayeri* 245. media inter 16. obſervationes major 6", 7, declinatio media inter 14 obſervationes major 0", 4, & recta aſcenſio eruta ex comparatione Planetae cum ſtella 244 ejusdem catalogi tribus habitis obſervationibus major 4", 6, declinatio major 2' 8", 8 illa, quae ex eadem ſtella μ collecta, invenitur; obſervationes autem ſingulae ad quadrantem muralem inſtitutae ſunt.

Declinationum differentias ſtellis H, η, n.° 245 & μ adhibitis ita exiguas invenimus, ut nulla earumdem correctione opus ſit; declinationem vero ſtellae n.° 244. auctam 2' 8", 8 deſcribemus. Aſcenſio recta inter illas, quae ex ſtellis H, η & μ deducitur media praeferenda nobis videtur, unde ſi Novus Planeta ſtellae tantum H comparatus, aſcenſioni rectae inde deductae 2", 3 demenda, ſi ſtellae η, 1", 0, ſi ſtellae μ 1", 3 eidem addenda, ſi ſtellis H & η ſimul 2", 6 illi demenda ſunt. Quod ſi Planeta ſtellae n.° 245 catalogi *Mayeri* collatus ſit 5", 4; ſi vero ſtellae n°. 244 ab aſcenſione recta inde eruta 3", 3 ſubducentur.

In Planetae locis ex theoria calculo ſupputandis aberrationis & nutationis ratio habita eſt; loca autem Planetae juxta theoriam habentur differentiis inter obſervationem & theoriam longitudini & latitudini obſervatae additis vel ſubductis. Ita 22 Auguſti longitudo Planetae obſervata habetur 3ˢ 2°. 0.', 10", 2, & latitudo obſervata 0°, 12' 55" 4, differentia theoriae ab obſervatione in longitudine + 0' 34", 2, & differentia in latitudine − 0.' 7", 7, unde longitudo ex circulari theo-

ri theoria calculo ſubducta invenitur $3^s\ 2.^\circ\ 0'\ 44''$, 2, & latitudo $0.^\circ\ 12'.\ 47''$, 7.

Obſervationes Planetae ante ejus oppoſitionem inſtitutae ad teleſcopium Gregorianum conſtructum a *Jacobo Short*, quod rhomboidali inſtructum micrometro centies diametrum augebat.

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An. 1781. Menſes & dies.	Tempus verum obſervationum.	Nomina ſtellarum Ca. *Mayeri*	Stellar. Aſc. rect. apparentes.	Stellar. declin. Boreales apparentes.	Differ. obſervata aſcenſ. rect.	Diff. obſervata declin. corr. a refra.	Aſcenſio recta Planetae obſervata.
Aug. 22	16^h 12' 4"	n°. 250.	92° 6' 53",9	23° 50' 51",1	+0° 4' 18",9	−10' 37",8	92° 11' 12",8
23	15 56 54	n°. 350.	92 6 54, 4	23 50 51, 1	+0 6 49, 3	−10 34, 8	92 13 43, 7
24	16 5 57	n°. 250.	92 6 54, 8	23 50 51, 1	+0 9 13, 9	−10 29, 4	92 16 8, 7
26	15 48 46	n°. 245.	91 23 42, 5	23 40 22, 5	+0 57 1, 8	− 0 13, 7	92 20 44, 3
		n°. 250.	92 6 55, 8	23 50 51, 1	+0 13 49, 9	−10 28, 7	92 20 45, 8
27	14 16 1	n°. 245.	91 23 43, 0	23 40 22, 5	+0 59 9, 8	− 0 21, 7	92 22 52, 8
		n°. 250.	92 6 56, 2	23 50 51, 1	+0 15 45, 5	−10 21, 6	92 22 41, 7
28	14 32 52	n°. 245.	91 23 43, 5	23 40 22, 5	+1 1 31, 1	− 0 14, 6	92 25 14, 6
		n°. 250.	92 6 56, 7	23 50 51, 1	+0 18 0, 5	−10 35, 0	92 24 57, 2
29	14 2 26	n°. 244.	90 54 30, 2	23 47 59, 2	+1 32 39, 8	− 7 48, 7	92 27 10, 0
		n°. 245.	91 23 44, 0	23 40 22, 5	+1 3 29, 0	− 0 13, 7	92 27 17, 0
		n°. 250.	92 6 57, 2	23 50 51, 1	+0 20 26, 3	−10 39, 1	92 27 23, 6
30	13 57 35	n°. 244.	90 54 31, 7	23 47 59, 2	+1 34 39, 8	− 7 50, 2	92 29 10, 5
		n°. 245.	91 23 44, 5	23 40 22, 5	+1 5 34, 2	− 0 15, 3	92 29 18, 7
		n°. 250.	92 6 57, 6	23 50 51, 1	+0 22 20, 3	−10 39, 7	92 29 17, 9
Sept. 1	14 35 13	n°. 244.	90 54 31, 7	23 47 59, 2	+1 39 7, 1	− 7 43, 2	92 33 38, 8
		n°. 245.	91 23 45, 5	23 40 22, 5	+1 9 46, 9	− 0 23, 6	92 33 32, 4
2	14 8 9	n°. 244.	90 54 32, 2	23 47 59, 2	+1 41 7, 0	− 7 53, 0	92 35 39, 4
		n°. 245.	91 23 46, 0	23 40 22, 5	+1 11 47, 0	− 0 24, 0	92 35 33, 0
		n°. 250.	92 6 59, 1	23 50 51, 2	+0 28 33, 7	−10 47, 9	92 35 32, 8
5	13 57 52	n°. 244.	90 54 33, 7	23 47 59, 2	+1 46 36, 8	− 7 53, 0	92 41 10, 5
		n°. 245.	91 23 47, 5	23 40 22, 5	+1 17 14, 6	− 0 24, 7	92 41 2, 1
		n°. 250.	92 7 0, 5	23 50 51, 1	+0 34 21, 9	−10 40, 9	92 41 22, 4
11	13 52 20	n°. 244.	90 54 36, 7	23 47 59, 2	+1 56 16, 8	− 8 5, 5	92 50 53, 5
		n°. 245.	91 23 50, 5	23 40 22, 5	+1 27 11, 5	− 0 24, 0	92 51 2, 0
		n°. 250.	92 7 3, 5	23 50 51, 1	+0 43 46, 2	−10 50, 5	92 50 49, 7

Decl. Plan. Borealis obſervata.	Aſcenſio recta aeſtimata.	Declin. Plan. Borealis aeſtimata.	Longitudo Planetae obſervata.	Latitudo Plan. Bor. obſervata.	Diff. theoriae ab obſervatione in long.	Diff. Theor. ab obſerv. in Latitudine.
23° 40' 13'',8	92° 11' 12'',6	23° 40' 13'',3	3ˢ 2° 0' 10'',2	0° 12' 55'',4	+ 0' 34'',[illegible]	- 0' 7'', 2
23 40 16, 3	92 13 43, 7	23 40 16, 3	3 2 2 28, 3	0 13 0, 6	+ 0 27, [illegible]	- 0 11, 2
23 40 21, 7	92 16 8, 7	23 40 21, 7	3 2 4 41, 1	0 13 7, 9	+ 0 29, 8	- 0 17, 5
23 40 8, 8	92 20 40, 6	23 40 12, 2	3 2 8 50, 2	0 13 2, 5	+ 0 31, 0	- 0 9, 5
23 40 22, 2						
23 40 0, 8	92 22 46, 0	23 40 8, 0	3 2 10 45, 1	0 13 0, 2	+ 0 31, 7	- 0 6, 1
23 40 29, 5						
23 40 7, 9	92 25 6, 2	23 40 10, 0	3 2 12 53, 5	0 13 4, 3	+ 0 25, 9	- 0 8, 9
23 40 16, 1						
23 40 10, 5						
23 40 8, 8	92 27 13, 0	23 40 9, 8	3 2 14 49, 6	0 13 6, 1	+ 0 25, 8	- 0 9, 5
23 40 12, [illegible]						
23 40 9, [illegible]						
23 40 7, 2	92 29 14, 3	23 40 8, 4	3 2 16 40, 7	0 13 6, 5	+ 0 30, 5	- 0 8, 7
23 40 11, 5						
23 40 16, 0	92 33 29, 1	23 40 3, 2	3 2 20 34, 1	0 13 5, 5	+ 0 23, 9	- 0 5, 3
23 39 58, 9						
23 40 6, 2						
23 39 58, 5	92 35 30, 3	23 40 2, 8	3 2 22 25, 1	0 13 7, 0	+ 0 19, 8	- 0 5, 5
23 40 12, 4						
23 40 6, 2						
23 39 57, 8	92 41 3, 9	23 40 2, 0	3 2 27 30, 7	0 13 11, 9	+ 0 20, 4	- 0 6, 8
23 40 10, 2						
23 39 53, 7						
23 39 58, 5	92 50 53, 9	23 39 58, 0	3 2 36 31, 0	0 13 18, 2	+ 0 20, 2	- 0 5, 4
23 40 0, 6						

An. 1781. Menſes & dies.	Tempus verum obſervationum.	Nomina ſtellarum Cat. *Mayeri.*	Stellar. Aſc. rect. apparentes.	Stellar. declin. Boreales apparentes.	Diff. obſervata aſc. rect.	Diff. obſervata decl. corr. a refra.	Aſcenſio recta Planetae obſervata.
Sept. 15	13h 39′ 41″	n°. 244.	90° 54′ 38″, 7	23° 47′ 59″, 3	+2° 1′ 59″, 2	− 8′ 2″, 9	92° 56′ 37″, 9
		n°. 245.	91 23 52, 5	23 40 22, 6	+1 32 38, 0	− 0 25, 6	92 56 30, 5
		n°. 250.	92 7 5, 4	23 50 51, 2	+0 48 26, 3	−10 51, 0	92 56 31, 7
18	12 38 27	n°. 250.	92 7 6, 9	23 50 51, 1	+0 52 59, 1	−10 47, 9	93 0 6, 0
24	12 53 49	n°. 244.	90 54 43, 1	23 47 59, 2	+2 10 54, 4	− 7 56, 2	93 5 37, 5
		n°. 245.	91 23 56, 9	23 40 22, 5	+1 41 52, 3	− 0 23, 3	93 5 49, 2
		n°. 250.	92 7 9, 9	23 50 51, 1	+0 58 16, 8	−10 46, 9	93 5 26, 7
		Cail. 184.	93 4 0, 1	23 32 43, 0	+0 1 44, 9	+ 7 17, 1	93 5 45, 0
29	12 38 34	n°. 244.	90 54 45, 6	23 47 59, 2	+2 14 12, 6	− 7 58, 7	93 8 58, 2
		n°. 245.	91 23 59, 4	23 40 22, 5	+1 44 56, 1	− 0 20, 2	93 8 55, 5
		n°. 250.	92 7 12, 3	23 50 51, 1	+1 1 31, 6	−10 44, 5	93 8 43, 9
		Cail. 184.	93 4 2, 4	23 32 43, 0	+0 4 43, 4	+ 7 21, 2	93 8 45, 8
Octo. 9	12 13 0	n°. 245.	91 24 4, 3	23 40 22, 4	+1 46 44, 0	− 0 7, 6	93 10 48, 3
		n°. 250.	92 7 17, 3	23 50 50, 9	[illegible]	−10 39, 3	93 10 43, 2
		Cail. 184.	93 4 7, 5	23 32 42, 8	+0 6 52, 0	+ 7 33, 2	93 10 59, 5
Nov. 11	10 36 3	n°. 244.	90 55 5, 6	23 47 58, 9	+1 42 22, 4	− 6 34, 2	92 37 28, 0
		n°. 245.	91 24 19, 6	23 40 21, 8	+1 13 3, 1	+ 1 0, 8	92 37 22, 7
		n°. 250.	92 7 32, 8	23 50 50, 4	+0 29 50, 7	− 9 31, 7	92 37 23, 5

Decl. Plan. Borealis obſervata.	Aſcenſio recta aeſtimata.	Declin. Plan. Borealis aeſtimata.	Longitudo Planetae obſervata.	Latitudo Plan. Bor. obſervata.	Diff. theoriae ab obſervatione in long.	Diff. Theor. ab obſerv. in latitudine.
23° 39' 56",4						
23 39 57, 0	92° 56' 28",3	23° 39' 57",5	3ˢ 2° 41' 37",2	0° 13' 24",0	† 0' 15",5	− 0' 6", 1
23 40 0, 2						
23 40 3, 2	93 0 6, 0	23 40 3, 2	3 2 44 56, 4	0 13 33, 6	† 0, 8, 9	− 0 11, 8
23 40 3, 0						
23 39 59, 2	93 5 39, 5	23 40 0, 8	3 2 50 1, 9	0 13 37, 8	† 0 11, 7	− 0 8, 0
23 40 4, 2						
23 40 0, 1						
23 40 0, 5						
23 40 2, 3	93 8 49, 2	23 40 3, 0	3 2 52 55, 5	0 13 43, 8	† 0 8, 4	− 0 7, 4
23 40 6, 5						
23 40 4, 2						
23 40 14, 8						
23 40 11, 6	93 [illegible] 46, 2	23 40 14, 4	3 2 54 42, 5	0 13 57, 5	† 0 5, 3	− 0 7, 8
23 40 16, 0						
23 41 24, 7						
23 41 22, 6	92 37 21, 0	23 41 22, 2	3 2 24 4, 1	0 14 28, 1	† 0 7, 6	† 0 4, 0
23 41 18, 7						

In hiſce obſervationibus poſtquam 5",4 aſcenſioni rectae ex ſtella nº. 245., & 3" 3 aſcenſioni rectae erutae ex ſtella nº. 244. dempta ſunt, quoties Planeta pluribus ſimul ſtellis comparatus eſt, non medium inter deducta Planetae loca ſumitur, ſed eorumdem differentiae ita aeſtimantur, ut triplo major perfectionis gradus locis deductis ex ſtella nº. 245., quam ex ſtellis reliquis tribuatur. Planeta enim harum obſervationum tempore ſtellae illius parallelo viciniſſimus verſabatur.

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OBSERVATIONES PLANETAE HABITAE

Tempus verum obſerv. tionum.	Nomina ſtellarum Cat. *Mayeri*	Stellar. Aſc. rect. apparentes.	Stellar. declin. Boreales apparentes.	Diff. obſervata aſc. rect.	Diff. obſervata decl. corr. a refra	Aſcenſio recta Planetae obſervata.
7h 23' 43	η Gem.	10° 25' 28'',8	22° 33' 18'',7	†2° 45' 11'',9	†1° 6' 54''	93° 10' 40'',7
7 20	η Gem.	0 25 29, 3	22 33 18, 7	†2 45 17, 1	†1 6 51,	93 10 46, 4
	n°. 245.	91 24 2, 8	23 40 22, 4	†1 46 48, 6	-0 0 14,	93 10 51, 4
7 12 4	η Gem.	0 25 30, 3	22 33 18, 7	†2 45 17,	†1 6 50,	93 10 47, 4
6 35 2	η Gem.	0 25 35, 5	22 33 18, 5	†2 41 40,	†1 7 7	93 7 16, 2
6 12 2	η Gem.	0 25 38, 6	22 33 18, 4	†2 37 2,	†1 7 20,	93 2 41, 1
3 19	η Gem.	0 25 54, 7	22 33 18, 9	†1 18 43, 4	†1 9 17,	91 44 38, 1
3 9 5	η Gem.	90 25 55, 3	22 33 18, 9	†1 13 25,	†1 9 23,	91 39 20, 8
3 0	η Gem.	0 25 55, 9	22 33 18, 9	†1 8 2,	†1 9 33,	91 33 58, 4
2 37 5	η Gem	0 25 57, 0	22 33 18, 8	†0 54 17,	†1 9 46,	91 20 14, 4
	μ Gem.	2 26 42, 1	22 36 37, 4	-1 6 29,	†1 6 24,	91 20 12, 6
2 33 2	η Gem.	90 25 57, 3	22 33 18, 8	†0 15 23,	†1 9 51,2	91 17 20, 5
	μ Gem.	92 26 42, 4	22 36 37,	-1 9 13, 9	†1 6 25,4	91 17 28, 5
1 56 2	η Gem.	0 25 59, 3	22 33 18,	†0 28 56.		90 54 55, 7
	n°. 245.	91 24 33,	3 40 21, 5	-0 29 31,		90 55 2, 0
	μ Gem.	2 26 44,	2 36 37,	1 31 46.	†1 6 37,7	90 54 57, 9
1 51 50	η Gem.	0 25 59, 6	2 33 18, 7	†0 26 7,		0 52 7, 2
	n°. 245.	1 24 33, 6	3 40 21, 5	-0 32 20,		0 52 12, 9
	μ Gem.	2 26 44, 6	22 36 37,	-1 34 36,	†1 6 37,9	0 52 8, 4
1 33 2	η Gem.	0 26 0, 6	22 33 18, 7	†0 14 56, 0		0 40 56, 6
	μ Gem.	92 26 45, 4	22 36 37,		†1 6 43,5	
1 28 47	η Gem.	0 26 0, 8	22 33 18,	†0 12 16, 6		90 38 17, 4
	μ Gem.	92 26 45, 5	22 36 37,	-1 48 33, 8	†1 6 46,1	90 38 11, 7
1 10 22	μ Gem.	92 26 46, 1	22 36 37,	-1 59 40, 7	†1 6 51,8	90 27 5, 4
1 5 48	n°. 245.	91 24 35, 0	23 40 21, 6	-0 59 58, 4	†0 3 10,9	90 24 36, 6
	μ Gem.	92 26 46, 2	22 36 37, 4	-2 2 22, 7	†1 6 51,3	90 24 23, 5

Decl. Plan. Borealis obſervata.	Aſcenſio recta aeſtimata	Decl. Plan. Borealis aeſtimata.	Longitudo Planetae obſervata.	Latitudo Plan. Bor. obſervata.	Diff. theoriae ab obſervatione in long.	Diff. Theor. ab obſerv. in latitudine.
23° 40' 13",1	93° 10' 41",7	23° 40' 13",1	3ˢ 2° 54' 38",3	0° 13' 56",1	† 0' 6", 9	− 0' 11", 3
23 40 9, 5 23 40 7, 5	93 10 46, 7	23 40 8, 7	3 2 54 43, 0	0 13 49, 1	† 0 7, 1	− 0 3, 9
23 40 8, 8	93 10 48, 4	23 40 8, 8	3 2 54 44, 6	0 13 51, 9	† 0 5, 9	− 0 3, 1
23 40 25, 9	93 7 17, 2	23 40 25, 9	3 2 51 30, 8	0 14 4, 8	† 0 11, 8	− 0 2, 7
23 40 38, 9	93 2 42, 1	23 40 38, 9	3 2 47 18, 6	0 14 12, 3	† 0 1, 3	− 0 2, 3
23 42 36, 2	91 44 39, 1	23 42 36, 2	3 1 35 49, 0	0 14 58, 4	− 0 4, 6	− 0 1, 9
23 42 41, 9	91 39 21, 8	23 42 41, 9	3 1 30 58, 5	0 15 0, 3	− 0 4, 9	− 0 2, 1
23 42 51, 9	91 33 59, 4	23 42 51, 9	3 1 26 3, 2	0 15 7, 1	− 0 4, 4	− 0 7, 1
23 49 5, 0 23 43 1, 5	91 20 14, 6	23 43 3, 1	3 1 13 27, 9	0 15 10, 7	− 0 2, 7	− 0 7, 7
23 43 10, 0 23 43 2, 8	91 17 25, 6	23 43 6, 4	3 1 10 53, 2	0 15 22, 6	− 0 0, 1	− 0 7, 9
23 43 15, 1	90 54 57, 5	23 43 15, 1	3 0 50 18, 9	0 15 11, 8	† 0 2, 0	− 0 1, 6
23 43 15, 3	90 52 8, 5	23 43 15, 3	3 0 47 44, 2	0 15 11, 0	† 0 2, 0	− 0 0, 2
22 43 20, 9	90 40 57, 6	23 43 20, 9	3 0 37 30, 1	0 15 13, 3	− 0 1, 7	− 0 0, 2
23 43 23, 5	90 38 15, 6	23 43 23, 5	3 0 35 1, 6	0 15 15, 2	− 0 6, 7	− 0 1, 6
23 43 29, 2	90 27 6, 7	23 43 29, 2	3 0 24 49, 2	0 15 18, 7	− 0 2, 0	− 0 3, 1
23 43 32, 5 23 43 28, 7	90 24 28, 4	23 43 30, 6	3 0 22 24, 3	0 15 19, 6	− 0 7, 5	− 0 3, 5

OBSERVATIONES PLANETAE HABITAE

An. 1781. Menſes & dies.	Tempus verum obſervationum.	Nomina ſtellarum Cat. *Meyeri*	Stellar. Aſc. rect. apparentes.	Stellar. declin. Boreales apparentes.	Diff. obſervata aſc. rect.	Diff. obſervata decl. corr. a refra.	Aſcenſio recta Planetae obſervata.
Jan. 4	10h56'42"	μ Gem.	92°26'46",4	22°36'37",4	−2° 7'51",6	+1° 6'53",3	90° 18' 54",8
6	10 47 36	n°. 245.	91 24 35,4	23 40 21,6	−1 11 0,3	+0 3 12,[illegible]	90 13 35,1
		μ Gem.	92 26 46,6	22 36 37,4	−2 13 9,9	+1 6 55,[illegible]	90 13 36,7
8	10 38 32	μ Gem.	92 26 46,7	22 36 37,4	−2 18 33,2	+1 6 56,[illegible]	90 8 13,5
9	10 34 [illegible]	μ Gem.	92 26 46,8	22 36 37,4	−2 21 15,5	+1 6 55,[illegible]	90 5 31,5
11	10 25 [illegible]	n°. 244.	90 55 22,1	23 48 2,9	−0 54 51,4	−0 4 26,[illegible]	90 0 30,7
		μ Gem.	92 26 47,0	22 36 37,4	−2 26 21,5	+1 6 55,[illegible]	90 0 25,5
12	10 20 34	n°. 245.	91 24 36,1	23 40 21,8	−1 26 35,0	+0 3 10,1	89 58 1,1
		μ Gem.	92 26 47,0	22 36 37,4	−2 28 50,5	+1 6 54,6	89 57 56,5
13	10 16 7	n°. 245.	91 24 36,[illegible]	23 40 21,8	−1 29 11,2	+0 3 13,[illegible]	89 55 24,9
		μ Gem.	92 26 47,1	22 36 37,[illegible]	−2 31 24,3	+1 6 56,0	89 55 22,8
14	10 11 38	n°. 245.	91 24 36,2	23 40 21,8	−1 31 34,6	+0 3 11,7	89 53 1,6
		μ Gem.	92 26 47,2	22 36 37,4	−2 33 56,0	+1 6 56,6	89 52 51,2
15	10 7 11	n°. 245.	91 24 36,[illegible]	23 40 21,[illegible]	−1 33 55,7	+0 3 10,4	89 50 40,5
		μ Gem.	92 26 47,2	22 36 37,5	−2 36 21,7	+1 6 56,8	89 50 25,5
17	9 58 21	n°. 245.	91 24 36,3	23 40 21,8	−1 38 35,0	+0 3 7,1	89 46 1,3
		μ Gem.	92 26 47,4	22 36 37,5	−2 40 59,6	+1 6 55,1	89 45 47,8
19	9 49 34	n°. 245.	91 24 36,4	23 40 21,8	−1 43 26,4	+0 3 10,1	89 41 10,0
		μ Gem.	92 26 47,5	22 36 37,5	−2 45 48,2	+1 6 56,7	89 40 59,3
20	9 45 12	n°. 245.	91 24 36,4	23 40 21,8	−1 45 54,6	+0 3 15,7	89 38 41,8
		μ Gem.	92 26 47,5	22 36 37,5	−2 48 4,9	+1 6 55,9	89 38 42,6
22	9 36 30	n°. 245.	90 55 22,7	23 48 2,8	−1 21 8,3	−0 4 26,3	89 34 14,4
		μ Gem.	92 26 47,5	22 36 37,6	−2 52 36,8	+1 6 55,0	89 34 10,7
28	9 10 48	n°. 244.	90 55 22,4	23 48 3,1	−1 33 37,6	−0 4 28,2	89 21 44,8
		μ Gem.	92 26 47,2	22 36 37,7	−3 5 7,5	+1 6 53,3	89 21 39,7
Feb. 1	8 53 57	μ Gem.	92 26 46,9	22 36 37,8	−3 12 50,2	+1 6 51,9	89 13 56,7
4	8 40 47	η Gem.	90 26 1,3	22 33 19,0	−1 17 9,8	+1 10 8,4	89 8 51,5
		μ Gem.	92 26 46,6	22 36 37,8	−3 17 51,9	+1 6 48,0	89 8 54,7

Decl. Plan. Borealis obſervata.	Aſcenſio recta aeſtimata	Decl. Plan. Borealis aeſtimata.	Longitudo Planetae obſervata.	Latitudo Plan. Bor. obſervata.	Diff. theoriae ab obſervatione in long.	Diff. Theor. ab obſerv. in latitudine.
23° 43' 30'',7	90° 18' 56'',1	23° 43' 30'',7	3ˢ 0° 17' 19'',8	0° 15' 19'',0	− 0' 1'', 1	− 0' 2'', 0
23 43 33, 7 23 43 32, 7	90 13 34, 2	23 43 33, 2	3 0 12 25,4	0 15 20, 9	− 0 1, 3	− 0 3, 1
23 43 33, 9	90 8 14, 8	23 43 33, 9	3 0 7 33,0	0 15 21, 2	† 0 0, 7	− 0 2, 7
23 43 33, 1	90 5 32, 6	23 43 33, 1	3 0 5 4,5	0 15 20, 4	† 0 5, 7	− 0 1, 5
23 43 36, 5 23 43 33, 1	90 0 27, 6	23 43 34, 8	3 0 0 25,3	0 15 21, 9	† 0 2, 3	− 0 2, 4
23 43 31, 9 23 43 32, c	89 57 57, 3	23 43 32, 0	2 29 58 7,7	0 15 19, 1	† 0 1, 1	† 0 0, 7
23 43 35, 1 23 43 33, 4	89 55 22, 4	23 43 34, 2	2 29 55 45,8	0 15 21, 4	† 0 5, 4	− 0 1, 4
23 43 33, 5 23 43 34, c	89 52 54, 9	23 43 33, 8	2 29 53 30,8	0 15 21, 1	† 0 2, 3	− 0 0, 8
23 43 32, 2 23 43 34, 3	89 50 31, 4	23 43 33, 3	2 29 5[illegible] [illegible],5	0 15 20, 7	− 0 0, 5	− 0 0, 2
22 43 28, 9 23 43 32, 6	89 45 53, 0	23 43 30, 8	2 29 47 4,6	0 15 18, 3	− 0 11, 0	† 0 2, 7
23 43 31, 9 23 43 34, 2	89 41 3, 2	23 43 33, 0	2 29 42 39,2	0 15 21, 3	− 0 3, 9	† 0 0, 1
23 43 37, 5 23 43 33, 4	89 38 40, 7	23 43 35, 4	2 29 40 28,8	0 15 24, 0	† 0 0, 7	− 0 2, 4
23 43 36, 5 23 43 32, 6	89 34 12, 1	23 43 34, 6	2 29 36 22,9	0 15 32, 8	† 0 0, 2	− 0 1, 9
25 43 34, 9 23 43 31, 0	89 21 41, 8	23 43 33, 0	2 29 24 56,0	0 15 24, 6	− 0 1, 7	− 0 2, 0
23 43 29, 7	89 13 58, 0	23 43 29, 7	2 29 17 51,4	0 15 23, 5	† 0 9, 5	− 0 0, 7
23 43 27, 4 23 43 25, 8	89 8 54, 2	23 43 26, 6	2 29 13 13,3	0 15 21, 9	† 0 1, 9	† 0 1, 0

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OBSERVATIONES PLANETAE HABITAE

An. 1782 Menſes & dies.	Tempus verum obſervationum.	Nomina ſtellarum Cat. *Meyeri.*	Stellar. Aſc. rect. apparentes.	Stellar. declin. Boreales apparentes.	Diff. obſervata aſc. rect.	Diff. obſervata decl. corr. a refra.	Aſcenſio recta Planetae obſervata.
Feb. 11	8h 13' 9"	H Gem.	87° 43' 15",1	23° 15' 35",6	+1° 15' 22",1	+0° 27' 43",5	88° 58' 37",2
		η Gem.	90 26 0,5	22 33 19,1	-1 27 28,5	+1 10 4,2	88 58 32,2
		μ Gem.	92 26 45,8	22 36 37,9	-3 28 13,4	+1 6 44,1	88 58 32,4
15	7 57 16	H Gem.	87 43 14,4	23 15 35,7	+1 10 35,7	+0 27 44,9	88 53 50,1
		η Gem.	90 25 59,8	22 33 19,1	-1 32 19,5	+1 10 1,4	88 53 40,3
		n°. 245.	91 24 34,0	23 40 22,1	-2 30 49,8	+0 3 2,3	88 53 44,2
		μ Gem.	91 26 45,1	22 36 38,0	-3 33 2,8	+1 6 43,8	88 53 42,3
16	7 53 20	H Gem.	87 43 14,2	23 15 35,7	+1 9 28,1	+0 27 49,4	88 52 42,3
		η Gem.	90 25 59,6	22 33 19,1	-1 33 22,5	+1 10 3,6	88 52 37,1
		μ Gem.	91 26 44,9	22 36 38,0	-3 34 13,2	+1 6 43,9	88 52 31,6
18	7 45 31	H Gem.	87 43 13,9	23 15 35,7	+1 7 29,5	+0 27 46,6	88 50 43,4
		η Gem	90 25 59,	22 33 19,2	-1 35 15,2	+1 10 1,	88 50 44,0
		μ Gem.	92 26 44,6	22 36 38,0	-3 36 0,0	+1 6 44	88 50 44,6
19	7 41 37	H Gem.	87 43 13,[illegible]	[illegible]	[illegible]	+0 27 47,[illegible]	88 49 50,5
		η Gem.	90 25 59,[illegible]	22 33 19,2	-1 36 12,4	+1 10 0,9	88 49 46,6
		n°. 245.	91 24 33,2	23 40 22,1	-2 34 44,0	+0 2 59,0	88 49 49,2
		μ Gem.	92 26 44,4	22 36 38,0	-3 36 57,1	+1 6 42,7	88 49 47,3
20	7 37 45	H Gem.	87 43 13,4	23 15 35,7	+1 5 39,8	+0 27 40,3	88 48 53,2
		η Gem.	90 25 58,8	22 33 19,2	-1 37 7,9	+1 9 58,1	88 48 50,9
		n°. 245.	91 24 33,0	23 40 22,	-2 35 30,7	+0 2 57,3	88 49 2,3
		μ Gem.	92 26 44,2	22 36 38,1	-3 37 51,1	+1 6 39,7	88 48 53,1
26	7 14 48	H Gem.	87 43 12,1	23 15 35,8	+1 1 50,0	+0 27 39,2	88 45 2,1
		η Gem.	90 25 57,6	22 33 19,	-1 41 2,2	+1 9 56,7	88 44 55,4
		μ Gem.	92 26 43,0	22 36 38,2	-3 41 44,8	+1 6 38,2	88 44 58,2
27	7 11 2	H Gem.	87 43 11,9	23 15 35,8	+1 1 30,4	+0 27 32,6	88 44 40,3
		η Gem.	90 25 57,4	22 33 19,3	-1 41 17,9	+1 9 53,7	88 44 39,5
		n°. 245.	91 24 31,6	23 40 22,3	-2 39 46,0	+0 2 49,2	88 44 45,6
		μ Gem.	92 26 42,8	22 36 38,2	-3 42 4,9	+1 6 33,5	88 44 37,9

Decl. Plan. Borealis obſervata.	Aſcenſio recta aeſtimata.	Declin. Plan. Borealis aeſtimata.	Longitudo Planetae obſervata.	Latitudo Plan. Bor. obſervata.	Diff. theoriae ab obſervatione in long.	Diff. Theor. ab obſerv. in latitudine.
23° 43' 19", 1						
23 43 23, 4	88° 58' 33", 9	23° 43' 21", 5	2s 29° 3' 45", 7	0° 15' 20", 5	+ 0' 0", 1	+ 0' 2", 1
23 43 22, 0						
23 43 20, 6						
23 43 20, 5	88 53 42, 9	23 43 21, 8	2 28 59 18, 9	0 15 22, 8	+ 0 2, 1	− 0 0, 5
23 43 24, 4						
23 43 21, 8						
23 43 25, 1						
23 43 22, 7	88 52 37, 0	23 43 23, 2	2 28 58 18, 9	0 15 24, 7	+ 0 3, 8	− 0 2, 5
23 43 21, 9						
23 43 22, 3						
23 43 20, 5	88 50 44, 0	23 43 21, 8	2 28 56 35, 2	0 15 24, 0	− 0 0, 5	− 0 2, 0
23 43 22, 7						
23 43 23, 4						
23 43 20, 1	88 49 47, 1	23 43 21, 5	2 28 55 45, 1	0 15 23, 9	+ 0 1, 4	− 0 2, 0
23 43 21, 1						
23 43 20, 7						
23 43 16, 0						
23 43 17, 3	88 48 53, 5	23 43 17, 7	2 28 54 53, 9	0 15 20, 7	+ 0 4, 4	+ 0 1, 0
23 43 19, 5						
23 43 17, 8						
23 43 15, 0						
23 43 16, 0	88 44 58, 0	23 43 15, 8	2 28 51 18, 9	0 15 20, 7	+ 0 5, 6	− 0 0, 0
23 43 16, 4						
23 43 8, 4						
23 43 13, 0	88 44 41, 5	23 43 11, 2	2 28 51 5, 2	0 15 16, 2	− 0 6, 0	+ 0 4, 3
23 43 11, 5						
23 43 11, 7						

OBSERVATIONES PLANETAE HABITAE

An. 1782. Menſes & dies.	Tempus verum obſervationum.	Nomina ſtellarum Ca. *Mayeri*	Stellar. Aſc. recta apparentes.	Stellar. declin. Boreales apparentes.	Differ. obſervata aſcenſ. recta.	Diff. obſervata declin. corr. a refra.	Aſcenſio recta Planetae obſervata.
Mart. 3.	6h 56′ 5″	H Gem.	87° 43′ 10″,9	23° 15′ 35″,8	†1° 0′ 15″,4	†0° 27′ 36″,4	88° 43′ 26″,3
		η Gem.	90 25 56, 4	22 33 19, 3	−1 42 33, 8	†1 9 53,2	88 43 22, 6
4	6 52 22	H Gem.	87 43 10, 7	23 15 35, 8	†1 0 2, 8	†0 27 34,4	88 43 13, 5
		η Gem.	90 25 56, 1	22 33 19, 3	−1 42 47, 3	†1 9 52,1	88 43 8, 8
		n°. 245.	91 24 30, 3	23 40 22, 4	−2 41 10, 1	†0 2 47,4	88 43 20, 2
		μ Gem.	92 26 41, 6	22 36 38, 4	−3 43 29, 1	†1 6 33,1	88 43 12, 5
5	6 48 41	H Gem.	87 43 10, 5	23 15 35, 8	†0 59 59, 8	†0 27 34,7	88 43 10, 3
		η Gem.	90 25 55, 9	22 33 19, 3	−1 42 51, 8	†1 9 52,4	88 43 4, 1
		μ Gem.	92 26 41, 4	22 36 38, 5	−3 43 35, 2	†1 6 35,0	88 43 6, 2
6	6 44 58	η Gem.	90 25 55, 7	22 33 19, 3	−1 42 48, 9	†1 9 50,8	88 43 6, 8
8	6 37 36	H Gem.	87 43 [illegible] 7	23 15 35, 8	†0 59 55, 3	†0 27 32,3	88 43 5, 0
		η Gem.	90 25 55, 2	22 33 19, 4	−1 42 50, 4	†1 9 48,[illegible]	88 43 4, 8
		μ Gem.	92 26 40, 6	[illegible]	[illegible] 7	†1 6 30,5	88 43 0, 9
10	6 30 16	H Gem.	87 43 9, 2	23 15 35, 8	†1 0 22, 8	†0 27 32,0	88 43 32, 0
		η Gem.	90 25 54, 7	22 33 19, 4	−1 42 26, 8	†1 9 47,9	88 43 27, 9
		μ Gem.	92 26 40, 1	22 36 38, 6	−3 43 14, 1	†1 6 30,0	88 43 26, 0
11	6 26 37	H Gem.	87 43 8, 9	23 15 35, 8	†1 0 35, 7	†0 27 35,3	88 43 44, 6
		η Gem.	90 25 54, 7	22 33 19, 4	−1 42 10, 5	†1 9 51,0	88 43 44, 2
		μ Gem.	92 26 39, 9	22 36 38, 4	−3 42 56, 8	†1 6 31,9	88 43 43, 1
13	6 19 23	H Gem.	87 43 8, 4	23 15 35, 8	†1 1 21, 5	†0 27 35,7	88 44 29, 9
		η Gem.	90 25 54, 4	22 33 19, 4	−1 41 25, 4	†1 9 50,2	88 44 29, 0
		μ Gem.	92 26 39, 4	22 36 38, 4	−3 42 13, 3	†1 6 31,6	88 44 26, 1
14	6 15 45	H Gem.	87 43 8, 2	23 15 35, 8	†1 1 47, 4	†0 27 35,9	88 44 55, 6
		η Gem.	90 25 54, 2	22 33 19, 4	−1 41 0, 7	†1 9 52,6	88 44 53, 5
		μ Gem.	92 26 39, 1	22 36 38, 4	−1 41 42, 5	†1 6 33,5	88 44 56, 6

Decl. Plan. Borealis obſervata.	Aſcenſio recta aeſtimata.	Declin. Plan. Borealis aeſtimata.	Longitudo Planetae obſervata.	Latitudo Plan. Bor. obſervata.	Diff. theoriae ab obſervatione in long	Diff Theor. ab obſerv. in latitudine.
23° 43' 12", 1	88° 43' 21", 9	23° 43' 12", 3	2ˢ 28° 49' 50", 4	0° 15' 18", 0	† 0' 1", 2	† 0' 1", 8
23 43 12, 5						
23 43 10, 2						
23 43 11, 4	88 43 12, 4	23 43 10, 7	2 28 49 41, 4	0 15 16, 5	† 0 1, 2	† 0 3, 1
23 43 9, 8						
23 43 11, 5						
23 43 10, 5						
23 43 11, 7	88 43 6, 9	23 43 11, 9	2 28 49 36, 6	0 15 17, 6	− 0 0, 4	† 0 1, 8
23 43 13, 5						
23 43 10, 1	88 43 7, 8	23 43 10, 1	2 28 49 37, 4	0 15 15, 9	− 0 3, 9	† 0 3, 5
23 43 8, 1						
23 43 7, 5	88 43 3, 6	23 43 8, 2	2 28 49 33, 5	0 15 13, 9	† 0 5, 2	† 0 4, 9
23 43 9, 1						
23 43 7, 0						
23 43 7, 3	88 43 28, 0	[illegible]	[illegible] 49 56, 5	0 15 13, 8	− 0 5, 7	† 0 4, 5
23 43 8, 6						
23 43 11, 1						
23 43 10, 4	88 43 44, 0	23 43 10, 6	2 28 50 10, 6	0 15 16, 3	− 0 2, 5	† 0 1, 8
23 43 10, 3						
23 43 11, 5						
23 43 9, 6	88 44 28, 3	23 43 10, 4	2 28 50 51, 1	0 15 15, 4	− 0 5, 7	† 0 2, 2
23 43 10, 0						
23 43 11, 7						
23 43 12, 0	88 44 55, 2	23 43 11, 9	2 28 51 15, 7	0 15 16, 7	− 0 6, 9	† 0 0, 8
23 43 11, 9						

OBSERVATIONES PLANETAE POST EJUS OPPOSITIONEM AD TELESCOPIUM GREGORIANUM PERACTAE.

An. 1782. Menſes & dies.	Tempus verum obſervationum.	Nomina ſtellarum Ca. *Mayeri*	Stellar. Aſc. rect. apparentes.	Stellar declin. Boreales apparentes.	Differ. obſervata aſcenſ. rect.	Diff. obſervata declin. corr. a refra.	Aſcenſio recta Planetae obſervata.
Mart. 27	7h 59' 40"	n°. 244.	90° 55' 10",6	23° 48' 0",3	−1° 59' 26",7	−0° 4' 41",6	88° 55' 42",9
		n°. 245.	91 24 24, 8	23 40 22, 6	−2 28 29, 9	+0 3 2, 2	88 55 54, 9
28	7 42 19	n°. 244.	90 55 10, 3	23 48 0, 3	−1 58 14, 6	−0 4 52, 1	88 56 55, 7
		n°. 245.	91 24 24, 5	23 40 22, 6	−2 27 18, 5	+0 2 49, 6	88 57 10, 1
Apr. 19.	8 34 55	n°. 244	90 55 5, 5	23 48 0, 1	−1 17 31, 7	−0 4 38, 3	89 37 33, 8
		n°. 245.	91 24 19, 5	23 40 22, 5	−1 46 50, 8	+0 2 56, 3	89 37 33, 4
Maii 2.	8 27 16	n°. 244.	90 55 3, 7	23 47 59, 9	−0 42 50, 7	−0 4 41, 9	90 12 13, 0
		n°. 245.	91 24 17, 7	23 40 22, 4	−1 12 7, 0	+0 2 50, 1	90 12 10, 7
		n°. 250.	92 7 31, 0	23 50 51, 5	−1 55 29, 8	−0 7 36, 0	90 12 1, 2
7	8 39 [illegible]	n°. 244.	90 55 3, 1	23 47 59, 8	−0 27 44, 5	−0 4 39, 8	90 27 18, 6
		n°. [illegible]	91 [illegible] 1	23 40 22, 3	−0 56 57, 6	+0 2 48, 9	90 27 19, 5
		n°. 250.	92 7 30, 6	23 50 51, 4	−1 40 17, 3	[illegible]	90 27 13, [illegible]
14	8 43 28	n°. 244.	90 55 2, 5	23 47 59, [illegible]	−0 [illegible] 10, 2	−0 4 42, 5	90 49 52, 3
		n°. 245.	91 24 16, 6	23 40 22, 2	−0 34 32, 5	+0 2 55, 9	90 49 44, 1
		n°. 250.	92 7 30, 1	23 50 51, 3	−1 17 48, 9	−0 7 28, 9	90 49 41, 2
17	8 22 25	n°. 244.	90 55 2, 2	23 47 59, 5	+0 4 48, 8	−0 4 39, 5	90 59 51, 0
		n°. 245.	91 24 16, 4	23 40 22, 2	−0 24 27, 8	+0 2 53, 0	90 59 48, 6
		n°. 250.	92 7 29, 9	23 50 51, 3	−1 7 49, 4	−0 7 56, 5	90 59 40, 5
21	8 48 34	n°. 244.	90 55 2, 4	23 47 59, 5	+0 18 41, 7	−0 4 43, 0	91 13 44, 1
		n°. 245.	91 24 16, 6	23 40 22, 2	−0 10 17, 9	+0 2 52, 0	91 13 58, 7
		n°. 250.	92 7 29, 7	23 50 51, 3	−0 53 41, 1	−0 7 40, 3	91 13 48, 6
26	8 52 44	n°. 244.	90 55 2, 7	23 47 59, 4	+0 36 33, 4	0 4 59, 2	91 31 36, 1
		n°. 245.	91 24 16, 8	23 40 22, 1	+0 7 17, 5	+0 2 43, 0	91 31 34, 3
		n°. 250.	92 7 29, 3	23 50 51, 2	−0 35 47, 2	−0 7 37, 4	91 31 42, 1

Decl. Plan. Borealis obſervata.	Aſcenſio recta aeſtimata.	Declin. Plan. Borealis aeſtimata.	Longitudo Planetae obſervata.	Latitudo Plan. Bor. obſervata.	Diff. theoriae ab obſervatione in long.	Diff. Theor. ab obſerv. in latitud.
23°43' 18",7	88° 55' 44",5	23° 43' 22",[illegible]	2ˢ 29° 1' 10",3	0° 15' 22",8	-0' 6",9	-0' 8", 2
23 43 28, 8						
23 43 8, 2	88 56 58, 5	23 43 10, 2	2 29 2 17, 9	0 15 9, 8	-0 10, 0	+0 4, 6
23 43 12, 2						
23 43 21, 8	89 37 29, 2	23 43 10, 3	2 29 39 23, 3	0 15 8, 8	-0 20, 2	+0 2, 0
23 43 18, 8						
23 43 18, 0						
23 43 12, 5	90 12 5, 4	23 43 15, 3	3 0 11 4, 1	0 15 2, 7	-0 32, 9	+0 7, 3
23 43 15, 5						
23 43 20, 0						
23 43 11, 2	90 27 14, 2	23 43 16, 5	3 0 24 56, 1	0 15 5, 7	-0 41, 0	+0 4, 4
23 43 18, 3						
23 43 17, 1						
23 43 18, 1	90 49 42, 9	23 43 19, 2	3 0 45 30, 2	0 15 13, 8	-0 43, 8	-0 3,
23 43 22, 4						
23 43 20, 0						
23 43 15, 2	90 59 43, 8	23 43 16, 7	3 0 54 41, 0	0 15 14, 8	-0 44, 9	-0 3,
23 43 14, 8						
23 43 16, 5						
23 43 14, 2	91 13 47, 5	23 43 13, 9	3 1 7 38, 0	0 15 18, 0	-0 59, 7	-0 6,
23 43 11, 0						
23 43 0, 2						
23 43 5, 1	91 31 34, 6	23 43 6, 4	3 1 23 50, 4	0 15 19, 8	-0 56, 1	-0 7,
23 43 13, 8						

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An. 1782. Menſes & dies.	Tempus verum obſervationum.	Nomina ſtellarum Cat. *Mayeri.*	Stellar. Aſc. rect. apparentes.	Stellar. declin. Boreales apparentes.	Diff. obſervata aſc. rect.	Diff. obſervata decl. corr. a refra.	Aſcenſio recta Planetae obſervata.
Maii 27	8h 39' 37"	n°. 244.	90° 55' 2",8	23° 47' 59",4	+0° 40' 16",8	-0° 5' 11",3	91° 35' 19",6
		n°. 245.	91 24 16,8	23 40 22, 1	+0 10 58, 0	+0 2 18, 6	91 35 14,6
		n°. 250.	92 7 29,4	23 50 51, 2	-0 32 22, 4	-0 8 10, 2	91 35 7,0
28	9 1 38	n°. 244	90 55 2,9	23 47 59, 5	+0 43 59, 6	-0 5 12, 2	91 39 2,5
		n°. 245.	91 24 16,9	23 40 22, 1	+0 14 47, 5	+0 2 27, 1	91 39 4,4
		n°. 250.	92 7 29,5	23 50 51, 2	-0 28 37, 2	-0 7 52, 4	91 38 52,3

Decl. Plan. Borealis obſervata.	Aſcenſio recta aeſtimata	Decl. Plan. Borealis aeſtimata.	Longitudo Planetae obſervata.	Latitudo Plan. Bor. obſervata.	Diff. theoriae ab obſervatione in long.	Diff. Theor. ab obſerv. in latitudine.
23° 42' 48",1	91° 35' 10",9	23° 42' 43",3	3ˢ 1° 27' 8",7	0° 14' 59",0	− 0' 57",5	+ 0' 13",9
23 42 40, 7						
23 42 41, 0						
23 42 47, 3	91 38 56,8	23 42 51, 8	3 1 30 55,4	0 15 9, 8	− 0 58, 2	+ 0 3, 1
23 42 49, 2						
23 42 58, 8						

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Differentiae theoriae ab obſervationibus 15. Maii & 17. Julii, quibus ſupra pro inclinationis orbitae & nodorum longitudinis inquiſitione uſi ſumus, habentur in longitudine † 0′. 42″, 6, † 0.′ 35″, 1, & in latitudine † 0′. 0″, 2, † 0.′ 8″, 7.

Si Planetae loca calculo ſupputentur in orbita parabolica, in qua tempus oppoſitionis pro tempore tranſitus per Perihelium, atque diſtantia Perihelia 16, 2019, prout ſupra eamdem invenimus, aſſumuntur, magis longe ab obſervationibus illa differunt. Die 14. Martii Planetae longitudo in hac orbita major 16′. 27″, 6 longitudine obſervata colligitur; multo autem majores differentiae eruuntur pro longinquioribus ab oppoſitione obſervationibus, ex quo patet orbitam parabolicam pro nova hac ſtella omnino excludendam eſſe.

Quamvis expoſitae theoriae circularis magnus cum obſervationibus praecipue illis, quae ad quadrantem muralem inſtitutae, conſenſus ſit, ut deſcriptae earumdem tabulae demonſtrant, major etiam paululum ille in obſervationibus ab oppoſitione diſtantioribus obtinetur, ſi diurnus Planetae motus pro tempore oppoſitionis exigua quantitate 0″, 32 erroribus, qui in obſervationes illabi poſſunt, longe minori augeatur. Tum enim ſuperiori aequatione reſoluta radius vector elicitur 18, 9461, tempus periodicae revolutionis 82ann., 465, ſive dies 30120 hor. 20 $\frac{4}{5}$, motus annuus Planetae 4.° 21′. 45″, 4, motus diurnus 43″, 027, & Epocha motus medii pro initio vertentis anni 1782. 3.ˢ 0.° 58′. 46″, 6. Hiſce elementis, atque inclinatione orbitae & nodi longitudine, quae ſupra, adhibitis, differentiae theoriae a deſcriptus obſervationibus, prout ſequitur, inveniuntur.

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Menſes & dies.	Diff. theor. ab obſerv. in longit.	Diff. theor. ab obſerv. in latitud.	Menſes & dies.	Diff. theor. ab obſerv. in longit.	Diff. theor. ab obſerv. in latitud.
A. 1781.			A. 1781.		
Maii 15	† 0′ 1″,8	† 0′ 0″,1	Dec. 13	† 0′ 0″,4	– 0′ 7″,5
Jul. 17	† 0 21, 4	† 0 7, 4	14	† 0 2, 2	– 0 7, 7
Aug. 22	† 0 37, 4	– 0 7, 4	22	† 0 0, 4	– 0 1, 5
23	† 0 31, 5	– 0 11, 4	23	† 0 1, 6	– 0 0, 1
24	† 0 33, 8	– 0 17, 7	27	– 0 3, 8	– 0 0, 1
26	† 0 35, 4	– 0 9, 7	28	– 0 8, 8	– 0 1, 5
27	† 0 36, 9	– 0 6, 3	A. 1782.		
28	† 0 21, 2	– 0 9, 1	Jan. 1	– 0 5, 5	– 0 3, 0
29	† 0 30, 6	– 0 9, 7	2	– 0 11, 0	– 0 3, 4
30	† 0 34, 5	– 0 8, 9	4	– 0 5, 5	– 0 1, 9
Sept. 1	† 0 30, 5	– 0 5, 4	6	– 0 6, 3	– 0 3, 0
2	† 0 25, 7	– 0 3, 0	8	– 0 4, 6	– 0 2, 6
5	† 0 29, 3	– 0 6, 9	9	– 0 0, 1	– 0 1, 4
11	† 0 29, 5	– 0 5, 5	11	– 0 4, 2	– 0 2, 3
15	† 0 25, 0	– 0 6, [illegible]	12	– 0 6, 7	† 0 0, 8
18	† 0 19, 7	– 0 11, 8	13	– 0 3, 1	– 0 1, 3
24	† 0 33, 5	– 0 8, 0	14	– 0 5, 0	– 0 0, 7
29	† 0 12, 5	– 0 7, 4	15	– 0 8, 1	– 0 0, 1
Octo. 5	† 0 19, 1	– 0 11, [illegible]	17	– 0 8, 1	† 0 2, 8
6	† 0 20, 5	– 0 3, 9	19	– 0 12, 5	† 0 0, 2
8	† 0 18, 8	– 0 3, 1	20	– 0 8, 2	– 0 2, 3
9	† 0 17, 1	– 0 7, 8	22	– 0 9, 0	– 0 1, 8
10	† 0 25, 3	– 0 2, 7	25	– 0 12, 3	– 0 1, 9
24	† 0 16, 9	– 0 2, 3	Febr. 1	– 0 1, 9	– 0 0, 6
Nov. 11	† 0 17, 6	† 0 4, 1	4	– 0 8, 7	† 1 1, 1
Dec. 4	† 0 0, 6	– 0 1, 7	11	– 0 12, 7	† 0 2, 2
6	† 0 0, 2	– 0 1, 9	15	– 0 9, 6	– 0 0, 4
8	– 0 0, 2	– 0 6, 9	16	– 0 9, 5	– 0 2, 4

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Menſes & dies.	Diff. theor. ab obſervat. in longitud.	Diff. theor. ab obſervat. in latitudine.
An. 1782.		
Febr. 18	− 0′ 5″, 9	− 0 1, 9
19	− 0 11, 8	− 0 1. 9
20	− 0 9, 0	† 0 1, 1
26	− 0 6, 9	− 0 0, 0
27	− 0 17, 7	† 0 4, 3
Mart. 3	− 0 12, 4	† 0 1, 8
4	− 0 12, 3	† 0 3, 1
5	− 0 12, 7	† 0 1, 8
6	− 0 16, 5	† 0 3, 3
8	− 0 7, 9	† 0 4, 9
10	− 0 13, 0	† 0 4, 5
11	− 9 15, 3	† 0 1, 8
13	− 0 18, 5	† [illegible]
14	− 0 20, 4	† 0 0, 8
27	− 0 17, 3	− 0 8, 2
28	− 0 18, 7	† 0 4, 6
Apr. 19	− 0 24, 2	† 0 2, 0
Maii. 2	− 0 32, 5	† 0 7, 4
7	− 0 39, 0	† 0 4, 5
14	− 0 37, 9	− 0 3, 1
17	− 0 37, 7	− 0 3, 6
21	− 0 51, 8	− 0 6, 4
26	− 0 48, 6	− 0 6, 9
27	− 0 45, 7	† 0 14, 2
28	− 0 45, 9	† 0 3, 5

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Die 1. Aprilis an. 1781. t. v. 10.h 39.′ 25″, a Cl. Regio Aſtronomo *Maſkelino* Aſcenſio recta Planetae obſervata fuit 84.° 21.′ 9″, & declinatio Borealis 23.° 34.′ 1″, unde deducitur longitudo 2.^{s} 24.° 49.′ 29.″ 4, & latitudo Borealis 0°. 11.′ 54″, 3. Juxta circularis orbitae elementa modo expoſita longitudo Planetae ad idem tempus calculo ſubducitur 2.^{s} 24.° 48.′ 51″, 5, & latitudo Borealis 0.° 11′, 31″, 1, atque inde differentia theoriae ab obſervatione quoad longitudinem – 0.′ 37″, 9, & quoad latitudinem – 0.′ 23″, 2.

Ex ſingulari integri & amplius anni obſervationum cum deſcripta theoria conſenſu manifeſto ſatis apparet Planetae trajectoriam hanc parum admodum a vera differre, ejusque excentricitatem ita exiguam eſſe, ut nonniſi poſt majorem numerum obſervationum longiori inter ſe temporis intervallo diſtantium cum illa, tum apſidum loca certo ſatis, tutoque determinari poſſe videatur.

Novus itaque Planeta, poſita Solari parallaxi 8″, 6, Telluris ſemidiametros 454409 a Sole diſtat & Solaris ſiſtematis extenſionem duplam ferme reddens ingens, quod inter ſtellas fixas & Saturnum exiſtit, minuit vacuum, oſtenditque illud Planetis aliis, qui in poſterum fortaſſe invenientur, minui adhuc poſſe.

F I N I S.

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